

**INVESTIGATING THE DISTRIBUTION OF TEACHER QUALITY BY
RACE/ETHNICITY AND SOCIOECONOMIC STATUS OF STUDENTS BY
SCHOOL IN ONE LARGE SCHOOL DISTRICT**

A Record of Study

by

ROBIN WEST MCGLOHN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

May 2012

Major Subject: Educational Administration

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Approved by:

Chair of Committee, James Scheurich
Committee Members, Angela Bies
Judy Sandlin
Gwen Webb-Hasan
Head of Department, Fred Nafukho

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ABSTRACT

Investigating the Distribution of Teacher Quality by Race/Ethnicity and Socioeconomic Status of Students by School in One Large School District. (May 2012)

Robin West McGlohn, B.S., University of Nevada Las Vegas;

M.S., University of Nevada Las Vegas

Chair of Advisory Committee: Dr. James Scheurich

The purpose of this study was to examine the relationship between teacher quality variables, student demographic variables, and student performance in order to determine the influence teacher quality variables have on student performance in one large school district. The population for this study included 69 schools during the 2007-2008 school year within one large suburban school district. Included in this study were 47 elementary schools, 14 middle schools, and 8 high schools.

In this three-phased study, descriptive correlations were examined, *t*-tests were conducted comparing each of the variable sets, and partial correlations were conducted in order to determine the strength of associations between teacher quality variables and student performance variables.

Findings from this study showed several strong and significant associations. When comparing the highest and lowest quartile of schools based on average years of teaching experience, percentage of within-district transfers, and total teacher mobility, there was a significant difference seen in both the percentage of economically

disadvantaged (ED) students and percentage of African American and Hispanic students combined. Further analysis showed a significant difference between the top and bottom quartiles of percentage of ED students and percentage of African American and Hispanic students combined and their performance in both math and reading. Findings showed that teaching experience was negatively associated with student performance in reading and math, however, there was a smaller association in math. Controlling for within-district teacher transfers had a small to medium association between African American and Hispanic students combined and commended performance or meeting standard in math and reading. When controlling for percentages of total teacher mobility (leavers + movers) from campuses, there was a strong negative, partial correlation between percentage of ED students and performance in math (commended only) and reading.

Implications for practitioners include the need to improve school leadership, improve working conditions, provide more and better professional support, create incentives to work in challenging schools, improve preparation for work in challenging schools, streamline hiring placement policies, create a coherent set of policies to close the staffing gap, and provide greater funding targeted to student needs.

DEDICATION

I dedicate this work to my precious daughter, Lauren Erin, who inspires me each day to make a difference in this world.

ACKNOWLEDGEMENTS

There are many people who have assisted and supported me with the completion of the work on this record of study and degree.

My family has been very instrumental in the completion of this degree. To my husband, Judd, who sacrificed many hours of family time and golf to provide the constant support and encouragement needed for me to complete this work, thank you for always being there for me and for loving me the way that you do. To my parents, Tom and Susan West, thank you for instilling in me a love for learning and a commitment to serve others. To my brother, Brian West, thanks for helping me to remember to not take life so seriously and to laugh. And to my sister and best friend, Shannon West Redwine, this work is a direct result of your influence in my life. You are my hero.

During my career, I have been blessed to work with many outstanding leaders. Each has helped me to grow and to better serve our students in public education. I would like to thank the outstanding principals and district leaders who serve the students, staff, and community of the Cypress-Fairbanks Independent School District. Their exceptional leadership and commitment toward improving education for all is demonstrated each and every day. I especially appreciate those who have mentored me in my leadership through the years including Roy Garcia, associate superintendent for Cypress-Fairbanks Independent School District; Dr. Linda Merrell, former senior director of staff development for Cypress-Fairbanks Independent School District; and Karyn Wright, former director for K-12 teacher development for Clark County School District. A special thank you to Glenda Horner, Mary Suderski, and Pat Bice for their

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CHAPTER I

INTRODUCTION

Throughout the United States, public school districts have felt the demands of increased accountability efforts to close achievement gaps between children of color and high-poverty and those living in affluence and of the White majority culture (Linn, Baker, & Betebenner, 2002; No Child Left Behind [NCLB], 2002). While there are several factors outside of schools that contribute to these gaps, none is more important than the quality of the classroom teacher each student receives (Darling-Hammond & Young, 2002; Rivkin, Hanushek, & Kain, 2005). As districts across the country aggressively recruit and hire teachers to meet the growing demands of an increased population and increased retirement, research shows that “our most vulnerable students—those in high-poverty, low-performing schools—are far less likely than their wealthier peers to attend schools with the most qualified staff.” (Lankford, Loeb & Wyckoff, 2002; Learning First Alliance, 2005, p. 1). Moreover, because children of color are more likely to attend such schools, it is African American and Latino students most affected by the inequitable distribution of its most qualified teachers.(Shields, Esch, Humphrey & Young, 1999). Cortese and von Zastrow (2006) eloquently describe this “staffing gap”,

The persistent academic achievement gaps between poor and wealthy children are an affront to our nation’s ideas and a serious threat to its future

This record of study follows the style of *Educational Researcher*.

prosperity. By giving to the rich while withholding from the poor, we carry on a long legacy of inequality that has severely restricted lifetime opportunities for millions of poor and minority children. If educators and policymakers are truly committed to closing the achievement gap, we must work together to close the staffing gap (p. 34)

Recent evidence supports what many have believed all along: teachers are the single most important factor in student learning and achievement in higher academic standards (Darling-Hammond & Young, 2002). This notion is further supported by the education policy community in its focus on teacher quality through the No Child Left Behind (NCLB) Act, which mandates a highly qualified teacher for every classroom. Yet, across the nation, districts are faced with the growing dilemma of how to ensure that every child, especially those in disadvantaged schools, are staffed with highly qualified teachers. Headlines in the news and conventional wisdom over the past decade contend that the national demand for up to 2 million teachers in the next few years is due primarily to climbing student enrollments and teacher retirements (Center for Innovative Thought, 2005). While these factors contribute to the dilemma of staffing high-quality teachers for every classroom, a national report, based on the Teacher Follow-up Survey conducted by the National Center for Education Statistics (as cited in Ingersoll, 2004), suggests:

...the crisis may not be due teacher shortages, in the sense of an insufficient supply of qualified teachers. Rather, the data indicate that school staffing

problems are primarily due to a ‘revolving door’ where large numbers of qualified teachers depart from their jobs long before retirement. (p. 2)

As John Merrow (1999) states,

The pool keeps losing water because no one is paying attention to the leak. That is, we’re misdiagnosing the problem as recruitment when it’s really retention. Simply put, we train teachers poorly and then treat them badly—and so they leave in droves. (p.64)

According to Ingersoll (2004), high-poverty schools lose one-fifth of their faculty each year. Additionally, the National Commission on Teaching and America’s Future estimates the rate of attrition is roughly 50% higher in poor schools than in wealthier ones (as cited in Alliance for Excellent Education, 2005). Over several years, the result of such turnover may lead to an entirely different staff within a short amount of time. This turnover leads to the vicious staffing cycle plaguing our highest needs schools. According to Katie Haycock (1998), director of the Education Trust:

While the teaching force in high poverty and high-minority communities certainly includes some of the most dedicated and talented teachers in the country, the truth is that these teachers are vastly outnumbered by under- and indeed, unqualified candidates...Minority and poor youngsters—the very youngsters who are most dependent on their teachers for content knowledge—are systematically taught by teachers with the least content knowledge. Teachers who lack even a minor in the field they are teaching are more than three times

more prevalent in low-wealth schools than in those with high wealth. (as cited in Voke, 2003, p. 5)

Therefore, if educational leaders have a chance at successfully assuring each classroom is housed with a quality teacher, they must do more than just initiate a one-size-fits-all approach to recruitment, placement, and induction of teachers in high-poverty schools.

Recent studies support Haycock's claim that poor children and children of color receive less than an equitable share of our best-equipped teachers, especially as it relates to areas of certification, subject matter knowledge, and experience. According to the U.S. Department of Education (2004), approximately one in twelve teachers in high-poverty districts is working under a waiver of certification requirements, compared with one out of every twenty teachers in other districts (as cited in Learning First Alliance, 2005). Jerald and Ingersoll found that students are much more likely to be taught by a teacher who has not completed a college major or minor in the subject taught and are more likely to be taught by teachers teaching outside of their field, specifically in middle school and shortage areas such as mathematics (as cited in Learning First Alliance, 2005, p. 4).

Finally, Mayer, Mullins, and Moore found that teachers in schools serving large populations of students in poverty and students of color are twice as likely to have only three years of experience or less (as cited in Learning First Alliance, 2005). Thus, the staffing gap that exists in high-poverty, high-minority schools is due to the shortage that lies in the distribution of teachers. Simply stated, there are not enough highly qualified and experienced teachers willing to serve rural and urban schools, particularly those

serving low-income students and students of color. The result is that principals who are faced with these difficulties resort to hiring less-qualified teachers, assigning teachers trained outside of their field or grade level to teach in hard-to-staff areas, and employ long-term substitutes to teach in unfilled vacancies (Ingersoll, 1997).

Closely connected with the staff gap is the perpetual achievement gap that exists between African American, Hispanic, and students from low-income homes and their White peers and peers from high-income homes. According to Viadero (as cited in Haun, 2011), Hispanic students were twice as likely and African American students were three times as likely as White and Asian students to come from low-income homes which illustrates the close relationship between race and class as seen in U.S public schools. Furthermore, Fowler and Walberg's study of 293 public schools in New Jersey found the second most consistent variable contributing to student achievement on state-developed tests was the percentage of students from low-income families in the school (as cited in Haun, 2011). The College Board (2009) reported the achievement gaps begin to appear in early elementary school and persist throughout middle and high school (as cited in Haun, 2011). Wiley contends that with the cumulative effects of an achievement gap starting in elementary school, it is no surprise African American and Hispanic high school students are less likely to be placed in advanced courses, compared to their White peers, due to entering ninth grade with lower scores on eighth grade standardized assessments (as cited in Haun, 2011). Although small gains have been made, according to Hemphill Vanneman, Rahman, and the National Center for Education Statistics (2009), the achievement gap seen between White students and their

African American and Hispanic peers has changed very little since 1990 due to all three groups making progress.

While research conducted by Rivkin, Hanushek, Kain, and Haycock supports that teachers do make a difference in student learning, studies show teaching quality has an even greater effect on the achievement of our most disadvantaged students (as cited in Voke, 2003). Therefore, the question is not simply staffing our highest needs schools with teachers, but staffing them with highly effective teachers that will remain in these schools. Without well-qualified teachers for our schools with the most disadvantaged students, our nation will fail to close the perpetual achievement gap that persists.

Statement of the Problem

Growing Rapids Independent School District (pseudonym) is a school district that faces unique challenges in the recruitment and retention of teachers in high-poverty schools. Over the last several years, Growing Rapids Independent School District (GRISD) has faced growing challenges related to attracting and retaining a talented pool of teachers in a geographical area with many competing school districts. GRISD has changed significantly since it began as a one-room building in the late 1800's. The traditionally rural district has emerged into one of phenomenal growth. GRISD continues to be one of the fastest growing in the nation as well as one of the largest districts in the state of Texas. With more than 80 campuses, over 13,000 employees, and more than 100,000 students, the district continues to build schools and support facilities.

In 1968, the 186-square-mile area was almost entirely rural. Now the surrounding community can best be described as metropolitan. Made up of suburban

communities with homes in all price ranges, GRISD has students that are representative of all socioeconomic groups. Additionally, GRISD has shifted drastically in its student demographics in the last 10 years. During the 2009 school year, the student population consisted of 16.8% African American, 8.8% Asian, 38.9% Hispanic, 0.3% Native American, and 35.7% European American. Forty-two percent were eligible for free or reduced-price lunch or other public assistance, and over 7,000 students received special education services. In addition, there were 18,000 students receiving ESL/bilingual services with 96 different languages and dialects spoken throughout the district. There were 13 New Arrival Centers for non-English speaking students and 30 elementary campuses with bilingual programs. Traditionally known for its “Recognized” accountability rating, the district now faces many challenges in meeting the needs of its rapidly changing and diverse population. The district-projected student growth was expected to be an additional 16,620 over the next five years; therefore, the district’s priority of recruiting, developing and retaining a highly qualified staff reflective of, and responsive to, the needs of the district’s diverse student body is essential to assuring student success across the district.

According to GRISD staffing reports, at the time this study began, the district had over 6,500 classroom teachers. These teachers were predominantly European American (77.7%), with approximately 10% African American, 10% Hispanic, 2% Asian, and 0.3% Native American also serving as teachers. Compared with the student population, African American teachers were underrepresented by nearly seven percentage points, Hispanic teachers were underrepresented by 29 percentage points and

Asian teachers were underrepresented by seven percentage points. While the total teacher population continued to rise, the teacher demographics remained relatively constant. In 2008-2009, females constituted 83% of the total teaching force, and the average years of experience across the district was 11 years.

During the 2008-2009 school year, GRISD hired over 1,000 teachers new to the district, which was approximately 20% of the total teacher population. This was due in part to the continued rapid growth of its student population. Of the over 1,000 teachers new to GRISD, more than 50% were new to the profession and an additional 16% had less than three years teaching experience. Approximately 29% of all teachers new to GRISD were in an alternative certification program (ACP). While the total number of teachers hired was less during 2009-2010, the percentage of beginning teachers and ACP candidates continued to rise. This indicates that while the district continues to grow, the landscape of teaching experience is shifting. In 2009-2010, teachers with less than three years or less of experience constituted 30% of the teaching force.

Additionally, data from staffing and retention reports during the past five years indicated that nearly one in four teachers that were new hires to the GRISD did not teach at the same campus the following year. Much of this movement was seen in schools with the highest population of students from low socioeconomic backgrounds. Many of these same teachers not only left the campus for which they were hired, they left the district altogether. In the 2008-2009 school year, teacher attrition costs in the U.S. were estimated at nearly \$2.4 million dollars, based on the Department of Labor's estimated costs for replacing employees (Alliance for Excellent Education, 2005). Moreover, over

50% of the teachers newly hired to the district were brand new teachers to the profession, and another 20% were hired with less than three years of teaching experience. Thus, as teachers with experience retired or left the district, they were more likely to be replaced with a novice teacher. This data illustrates the dilemma in this district of the “revolving door” syndrome (Ingersoll, 2004, p. 2) that plagues many schools across the country. As one begins to look more closely at the vicious cycle of attracting and retaining experienced teachers who are able to meet the growing demands of public education, it becomes critical to recognize that it is often the most underperforming and poorest students who are taught by the least experienced teachers (Learning First Alliance, 2005). While there are many novice teachers who are fully capable of providing quality instruction to students from diverse backgrounds, no one would argue that even these teachers have the potential of becoming even better teachers over time. This is supported by research which suggests that novice teachers’ practice and effectiveness typically improve substantially over the first few years of teaching (Rivkin et al., 2000). Therefore, if Growing Rapids ISD is to succeed in ensuring that the brightest and most talented teaching force is attracted to and retained in high-poverty, low-performing schools, they must begin by examining the existing contexts, policies, and practices which perpetuate the staffing gap problem in one of the largest, fastest changing, and fastest growing school districts in the state of Texas.

Purpose of the Study

The purpose of this study was to examine the relationship between teacher quality variables, student demographic variables, and student performance in order to determine

the influence teacher quality variables have on student performance in one large school district. In this study, two independent variables were targeted: student ethnicity and socioeconomic status. The independent variable, ethnicity, was generally defined as the ethnic background of students as they were identified on the state assessment test. The independent variable, socioeconomic status, was defined using the state coding, *Economically Disadvantaged (ED)* which is generally defined as students eligible for free or reduced-price lunch or eligible for other public assistance. The dependent variables were generally defined as the student performance passing standards in reading and mathematics on the Texas Assessment of Knowledge and Skills (TAKS) test. Teacher quality variables including years of teaching experience, attrition from district, within-district transfers, and total teacher mobility. These were the control and intervening variables and were statistically controlled in this study.

Operational Definitions

The terms and acronyms referenced throughout this study are listed below and can serve as a guide for the reader.

Academic Excellence Indicator System (AEIS) – The Academic Excellence Indicator System (AEIS) aggregates information on the performance of students in each school and district in Texas every year and is published each fall. Performance is shown disaggregated by ethnicity, sex, special education, low income status, limited English proficient status, at-risk status, and bilingual/ESL. The reports also provide information on school and district staff, finances, programs, and student demographics.

Accountability Rating – This refers to the district and campus ratings assigned by the state accountability system. Districts and campuses are evaluated on performance on the TAKS, completion rate, and annual dropout rate. Possible ratings are: *Exemplary; Recognized; Academically Acceptable; Academically Unacceptable; Not Rated: Other; and Not Rated: Data Integrity Issues.*

Economically Disadvantaged (ED) – The percent of economically disadvantaged students is calculated as the sum of the students coded as eligible for free or reduced-price lunch or eligible for other public assistance, divided by the total number of students.

Texas Assessment of Knowledge and Skills (TAKS) – The Texas Assessment of Knowledge and Skills (TAKS) is a comprehensive testing program for public school students in grades 3–11. The TAKS is designed to measure the extent to which a student has mastered the concepts and skills expected at each tested grade level. The grades and subjects shown on the AEIS reports and utilized in this study are:

- Grades 3-5 – reading and mathematics
- Grade 6-8 – reading and mathematics
- Grade 9 – reading and mathematics
- Grade 10-11 – English language arts and mathematics

Each one of these tests is linked directly to the Texas Essential Knowledge and Skills (TEKS) curriculum.

TAKS Commended – This highest performance level measurement on the TAKS, as set by the State Board of Education.

TAKS Met 2008 Standard – This refers to the passing standard for the state. For grades and subjects on the horizontal scale, a scale score of 2100 or higher is passing. For grades and subjects on the vertical scale, the scale scores required to pass vary. The student passing standard is set by the State Board of Education.

Teachers by Highest Degree Held (District Profile only) – This shows the distribution of degrees attained by teachers in the district. Teachers were classified with no degree, bachelor, master, and doctoral degrees.

Teachers by Years of Experience (District Profile only) – This is the percentage of teachers with total years of professional teaching experience, not years of experience, in the reporting district or campus. A beginning teacher is a teacher reported with zero years of experience.

Research Questions

1. Is there a difference between the top and bottom quartiles of schools based on percentage of teachers earning masters or above degrees between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?
2. Is there a difference between the top and bottom quartiles of schools based on average years of teaching experience between schools serving higher percentages of ED students and African American and Hispanic students combined and

schools serving smaller percentages of ED students and African American and Hispanic students combined?

3. Is there a difference between the top and bottom quartiles of schools based on the percentage of teachers leaving the district between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?
4. Is there a difference between the top and bottom quartiles of schools based on the percentage of teachers transferring to another school within the district between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?
5. Is there a difference between the top and bottom quartiles of schools based on the percentage of total teacher mobility between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?
6. Is there a difference between the top and bottom quartiles of schools based on the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller

percentages of ED students and African American and Hispanic students combined?

7. Is there a difference between the top and bottom quartiles of schools based on the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?
8. Is there a difference in the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for years of teaching experience?
9. Is there a difference in the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for years of teaching experience?
10. Is there a difference in the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools

serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of teachers leaving district?

11. Is there a difference in the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of teachers leaving district?
12. Is there a difference in the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of teachers transferring to another school within district?
13. Is there a difference in the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of teachers transferring to another school within district?
14. Is there a difference in the percentage of students that met standard and met commended performance in math between schools serving higher percentages of

ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of total teacher mobility?

15. Is there a difference in the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of total teacher mobility?

Assumptions

Certain assumptions were made concerning the quality of the data. Initially, it was assumed that the data received from the district regarding teaching experience for each teacher and their assigned campus was accurate. Secondly, it was assumed that the teacher mobility data received from the district including attrition from district, within-district transfers, and total teacher mobility for each campus was accurate. Thirdly, it was assumed that TAKS student performance data received from the district was accurate and reflective of the state-generated AEIS reports. Lastly, it was assumed that ED students tested from each school on the math and reading TAKS and African American and Hispanic students tested from each school on math and reading TAKS were representative of that total student group for the school.

Limitations

This was a sample of convenience. There was no attempt to collect teacher quality data, student demographic data, or student performance data from other large, fast-growing districts across Texas. Therefore, results from this study may not be generalizable to other districts across the state.

Additionally, there were several limitations associated with the teacher variables selected. One of the teacher variables examined, advanced degrees, did not indicate the field in which the advanced degree was earned in order to examine whether advanced degrees in a particular field were predictors for student achievement. The type of preparation program was not examined due to insufficient data; however, there were several studies that show links between the type of preparation programs teachers attend and their likelihood to stay in the profession. Verbal ability, another teacher quality variable associated with student performance, was not examined due to insufficient data.

There was no qualitative data in the study. Qualitative data would have assisted with exploring context-specific factors contributing to the inequitable distribution of teacher quality in schools serving higher populations of ED students and African American and Hispanic students combined. In short, while this study was aimed to validate, there was a problem with inequitable distribution of teacher quality and the impact it had on student learning. It did not explore why this was occurring or the context-specific factors that contributed to it. This was a limitation of the study.

Significance of Study

As Growing Rapids ISD strives to ensure academic excellence for all students, it was critical to identify the variables that contributed to the underperformance of certain student groups, specifically ED students and African American and Hispanic students. Being able to isolate specific variables that contributed to the underperformance of student groups provided district leaders the knowledge they needed to leverage and target resources in such a way that barriers were eliminated and root causes were addressed. Results from the study provided district leaders with the information needed to validate whether there was a problem with an inequitable distribution of teacher quality in schools serving higher populations of ED students and African American and Hispanic students combined. Furthermore, it showed the impact that specific teacher variables had on student performance. With this information, district leaders can build the political will of its school, district, and community leaders to take more aggressive steps in eliminating the barriers and addressing the root causes of its staffing gap.

Organization of the Record of Study

This record of study is divided into five chapters. Chapter I contains an introduction, a statement of the problem, purpose of the study, research questions, the operational definitions, the assumptions and limitations, the significance of the study, and the organization of the record of study. Chapter II contains the review of literature. Chapter III contains the population, instrumentation, procedures, and data analysis. Chapter IV contains the results and data analyses. Chapter V includes the researcher's summary, conclusions, implications, and recommendations.

CHAPTER II

REVIEW OF LITERATURE

Conversations about retaining quality teachers cannot begin with trying to figure out how best to retain “qualified” teachers under traditional definitions, but must begin with exploring what “quality” really means. Discussion about the competencies, qualities, and dispositions of teachers that will bring about success for all students is paramount to the issue of teacher recruitment, development, and retention. Educational improvement in the area of teacher quality is not simply aiming to retain teachers, but retaining *quality* teachers in a variety of settings. It is only after building a common consensus of what teacher quality really is that educational leaders can begin to explore the effective strategies needed to retain a talented teaching force. This review of literature aims to explore the many facets of “teacher quality” defined, the importance of examining the problem of staffing high-poverty, low-performing schools with effective teachers through a systems approach, and effective and systemic strategies which have shown promising results in addressing teacher mobility in high-poverty, low performing schools as a way to build a body of knowledge that will guide this study.

The first portion of this literature review aims to shed light on the complex nature of defining “teacher quality” and presents several definitions which can be applied to a more inclusive definition of teacher quality, one that considers the multifaceted inputs, processes, and outputs associated with quality teachers.

“Teacher Quality” Defined

Teacher quality is an elusive and multidimensional concept when one considers the complex task of teaching. Some define teacher quality in terms of the qualifications they hold or the expertise they bring. Others focus on the knowledge, skills, and dispositions teachers possess or demonstrate on the job. Still, others rely on the voices of the customers they serve—students, parents, and communities—to define teacher quality. Despite the debate on how teacher quality should best be defined, few will argue what literature supports and what many have said all along—when it comes to student learning, teacher quality does matter (Darling-Hammond & Young, 2002; Sanders & Rivers, 1996). As standards for learning increase and districts feel increased demands for accountability, attention continues to be given to the role that teacher quality plays in student achievement.

Since the inception of NCLB, teacher quality has been a hot topic which has spawned policy debates across the country and has enormous implications for schools serving high populations of students of color and from low socioeconomic backgrounds. Yet, without a level of understanding or consensus for what constitutes “teacher quality,” public education will surely continue to fail in attracting, preparing, developing, and retaining a teaching force adequately prepared and able to produce readiness for young people to enter post-secondary education and the workforce from all backgrounds. More importantly, without turning to a comprehensive review of literature focused on teacher characteristics, qualities, and competencies needed in a variety of contexts, policymakers will continue to develop and initiate myopic, hegemonic policies

which have little impact on closing the achievement gap. Therefore, as educators, policymakers, parents, and other stakeholders continue to engage in critical conversations and debates about teacher quality and how best to measure it, a shared interpretation of the terms used to describe teacher quality is needed to reach decisions which ensure the success for all students. “Teacher quality” defined by traditional measures may not provide the framework of standards needed to bring about a committed teaching force capable of meeting the needs of all students.

Since the release of the Coleman Report in 1966 by the Office of Education which claimed schools do not matter, an extensive body of research has continued to emerge showing, in fact, teacher characteristics do make a difference. Yet, the emergence of research and literature related to teacher quality has created more ambiguity about what really constitutes “teacher quality.” To assist educators and policymakers in making sense of the many ways in which researchers have been measuring quality over the years, the National Comprehensive Center for Teacher Quality (2007) provided a framework with overarching dimensions of teacher quality based on a comprehensive review of literature. This framework was intended to assist individuals and groups with building a common understanding and definition of teacher quality. This framework consists of four ways of looking at teacher quality, grouped in three categories, as follows: 1) inputs (teacher qualifications and teacher characteristics; 2) processes (teacher practices), and 3) outcomes (teacher effectiveness). A brief overview of the framework is provided in the following sections as a guide to categorically describe the research related to defining teacher quality. This is not to say,

however, that each of these areas works in isolation to address quality. In actuality, these categories are often interconnected and demonstrate the importance of not defining “teacher quality” in terms of only one or two areas.

Inputs

Teacher qualification. Teacher qualification is one way of defining teacher quality and can include credentials which teachers have successfully completed. This usually encompasses a state-approved teacher preparation program, background checks demonstrating their good character, and a bachelor’s degree. Additionally, most states require some sort of an examination of content and pedagogy as part of their certification process. Qualifications might also include level of experience, advanced degrees, and certification endorsements. It should be noted, however, the latter descriptors are not prerequisites for teachers to be considered minimally qualified. It is upon this definition that the term “highly qualified teacher” was espoused in the *NCLB Act*. NCLB requires local school districts to ensure that all hired teachers teaching core academic subjects are “highly qualified.” A “highly qualified teacher” is defined as one with full certification, a bachelor's degree, and proficiency in both subject knowledge and teaching. Core subjects include English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography.

According to Betts, Zau, and Rice, there is wide variability among teacher paper qualifications (e.g., degrees, certification, etc.) and its relationship among subject areas and between grade levels (as cited in National Comprehensive Center for Teacher Quality, 2007). In other words, the qualifications that might have a relationship with one

subject area may not have the same impact in another. The only exception noted is in upper level mathematics where a strong relationship exists between degrees and certification in math and student performance scores (Goldhaber & Brewer, 2000). Darling-Hammond (1999) found the percentage of teachers with full certification and a major in the field is a more powerful predictor of student achievement than teachers' education levels. While most agree that some standard for entry into the profession is needed, some argue the narrow focus on teacher credentials, such as state certification as a way to determine the quality of a teaching applicant, may actually deter some prospective teachers from entering the profession who might be effective based on other definitions of quality (Ballou & Podgursky, 2001).

Teacher certification is one indicator used to define teacher quality. Additionally, some research indicates the type of preparation programs teachers attend also seem to matter. New teachers from extended preparation programs are more likely to stay in the profession (Darling-Hammond, 2003). This is especially important given the body of literature which supports that experience is an indicator of quality when comparing novice teachers to veteran teachers. A recent study in New York City suggested there might also be differences in teacher quality among teachers prepared in different ways (traditional versus alternative routes) (Boyd, Grossman, Lankford, Loeb, and Wycoff 2006).

Yet the research is not clear. Using NCLB's definition of "highly qualified," Carr (2006) found teacher quality (i.e. highly qualified teacher status) was significant, but not large, and experience and advanced degrees did not significantly contribute to

student achievement (as cited in Goe, 2007). This finding raises questions about whether NCLB's standards contribute to raising teacher quality that impacts student success as a measure by state accountability test scores. Hanushek (2002) contends that "teacher certification requirements are generally promoted as ensuring that there is a floor on quality, but if they end up keeping out high-quality teachers who do not want to take the specific required courses, such requirements act more like a ceiling on quality" (p. 4). Ladson-Billings echoes this sentiment in a recent interview when asked, "So how does this issue of definition [teacher quality] affect who gets in the classroom?" (Au, 2005/2006). She responded,

Because we've got a very minimum standard—you have to have successfully gone through a teacher education program—then the definition of teacher quality sort of falls back on the programs that have recommended teachers, and that's pretty much it. It's not so much that we've looked at the individual in relation to the skills that she or he has developed. (Au, 2005/2006, p. 2)

As states consider policies related to teacher licensure, specific reforms should be considered, especially related to uniformity, comparability, and portability of scores within and across states. More must be done to eliminate the variability that occurs due to the differing standards required for demonstration of subject matter knowledge, including passing scores currently required on the different professional assessments (Education Testing Service [ETS], 2004).

Teacher capacity. Studies have suggested that teachers' verbal ability is related to student achievement (Andrew, Cobb & Giampietro, 2005; Ehrenberg & Brewer, 1995). Ehrenberg and Brewer (1995) found that verbal aptitude scores of both African American and White teachers influenced student performance. Additionally, it should be noted, in some specifications, African American teachers had higher gains in achievement for African American high schools students (Ehrenberg & Brewer, 1995). Therefore, some argue that verbal ability should not be excluded from defining teacher quality.

Teacher characteristics. Recently, attention has been given to exploring teacher characteristics (e.g., ethnicity, gender, cultural background, etc.) and its relationship to student success. Sleeter (2001) argues that "students of color tend to bring richer experiences and perspectives to multicultural teaching than do most White students, who dominate numerically" (p. 94). She supports the argument that students of color bring a richer multicultural knowledge base to teacher education and are more committed to multicultural teaching, social justice, and providing children of color with an academically challenging curriculum than do White students (Ladson-Billings, 1991; Rios & Montesinos, 1999; Su, 1996, 1997, as cited in Sleeter, 2001). This is not to suggest that preservice development is not critical for both groups; however, it does argue the majority White teaching population may not have the experiential knowledge to relate to the experiences of students from different backgrounds other than their own. This brings to light two different schools of thought related to physical and cultural characteristics and teacher quality. Some suggest a greater emphasis on recruitment and

selection of prospective teachers of color into education programs, while others suggest cross-cultural immersion programs in which teacher education programs place students in the contexts for which they are being prepared (Sleeter, 2001).

Processes

Teacher expertise. Teacher expertise is defined as an inclusive working knowledge of both subject matter content and content-specific pedagogy (NCCTQ, 2007). Based on this definition of teacher quality, expert teachers generally have an understanding of how students learn, as well as a repertoire of effective pedagogies to help all students learn. This includes cultural competencies which engage teachers in culturally responsive pedagogies for the context in which they teach (Ladson-Billings, 1995).

Teacher performance. Teachers do not enter the classroom as finished products in the teaching profession. New teachers entering the profession do not possess all the knowledge and skills they will need to become highly effective. However, through professional practice and reflection focused on performance standards, quality teaching can be shaped; novices can become better teachers (Wenglinsky, 2000). High-performing teachers are those whose actions are observed to meet or exceed high standards of teaching practice. High-performing teachers demonstrate the knowledge and skills to provide high-quality instruction to all their students. These teachers will likely produce high student-learning outcomes but may be unable to provide valid, reliable, or sufficient evidence of student learning outcomes (NCCTQ, 2007). Teacher appraisal systems often reflect this notion of defining teacher quality. Frameworks have

been promoted to encompass teacher performance standards as a way to measure teacher quality (Danielson, 2007).

Additionally, other studies shed light on the possibility of measuring teacher quality through National Board for Professional Teaching Standards (NBPTS) programs (Cavalluzzo, 2004; Goldhaber, D. & Anthony, E. 2005) which do not measure quality by simply checking credentials, but assess what teachers are actually doing in the classroom in order to evaluate quality. This definition of teacher quality does not presume that a quality teacher shows up on day one, but honors the profession of teaching as a “continuum, from preservice preparation to initial licensure, to hiring and induction, continued practice and professional development through mastery and advanced certification” (Education Testing Service, 2004, p. 4).

Teacher character. Teachers of character possess certain traits and dispositions embedded in practice which are observed to be related to quality teaching: sensitivity, warmth, enthusiasm, passion, creativity, persistence, caring, commitment, self-efficacy, and genuineness (NCCTQ, 2007). Haberman (2005) argues that a teacher’s disposition in their approach to working with at-risk students is the most powerful indicator of an effective urban educator. Teachers successful in diverse contexts do not blame the children or their parents for failing schools; rather, they take ownership and feel a sense of efficacy that the curriculum, their methodologies, and cultural infusion has more to do with their students’ success (Haberman, 2005; Ladson-Billings, 1995).

Narrow definitions of “teacher quality” continue to draw attention away from some of the most critical dispositions and characteristics of teachers who have shown success with students of color, particularly African American students. These characteristics include a genuine ethic of care, personal accountability for pedagogical practices, lens for critiquing systems, and maintaining students’ cultural identity (Ladson-Billings, 1995). Ladson-Billings (1995) offers three broad propositions for culturally relevant teaching behaviors which she contends in her research influence student learning in African American students. These include “the conceptions of self and others, the manner in which social relations are structured, and the conceptions of knowledge” (p. 478). The three areas are briefly discussed in the following sections as a way to compare traditional definitions of teacher quality with research largely ignored in the political arenas of teacher quality debates.

First, the conceptions of self and others refers to the way in which teachers view their students’ capability, their own practice as a craft, and their sense of community in being part of and giving back to it. Most important to this conception is the idea of fluidity and constant “mining” that occurs when teachers “pull out” knowledge from their students. Social relations are also important in culturally relevant teaching and are demonstrated by connectivity with all students, an established environment where students are a part of a collaborative community of learners, and where teacher-student relationships are maintained. While there are many evaluative tools that reflect indicators related to these areas, a focus on social relations alone is not enough to define quality teaching.

Using the designation of “highly qualified” without acknowledging, supporting, and promoting those qualitative characteristics, which contribute to successful urban teaching, most certainly will continue to produce small gains in retaining teachers who are successful in diverse contexts. This is supported by literature which indicates those teachers who quit or fail urban schools are typically White, monolingual, female, teacher education students in undergraduate, preservice teacher education programs and who have preconceived notions about what the experience of teaching in urban setting entail (Haberman, 1996, as cited in Sleeter, 2001). The ability of teachers to help students gain a positive sense of themselves and develop a commitment to larger contextual issues is a reflection of a teachers’ genuine ethic of care. These qualitative ways of viewing teacher quality are vital to the education of students in poverty and from backgrounds different from mainstream culture; yet, they are not closely similar to characteristics of “highly qualified” defined by NCLB.

Outcomes

Teacher success/effectiveness. The term, “successful teachers,” could be defined as teachers who are “highly effective” in producing student success (however defined) and/or “high performing,” so they likely will produce student growth and success (NCCTQ, 2007). Teacher effectiveness is best described as the direct impact or effect the teacher’s contribution has on student outcomes such as academic achievement test scores, graduation rates, social and behavioral outcomes, or however it might be measured (NCCTQ, 2007). A major objective of NCLB is to ensure that all students, regardless of race, ethnicity, or income have a highly qualified teacher given

the strong correlation found between student academic achievement and teacher quality (Sanders & Rivers, 1996).

Education policymakers and leaders can better serve public education by recognizing the complexity of the issue of defining teacher quality and adopting multiple measures along many of the dimensions to attract promising teachers who can have an impact on student learning in many different contexts. Until consensus is reached on how to measure teacher quality, it becomes critical that districts gather data on teachers and their instruction in order to engage in productive conversations about what teacher quality really is and how best to measure it. Starting with a clear understanding of the goals and purposes toward which the measurement of teacher quality and effectiveness will be applied will assist in effectively communicating a clear definition (Coggshall, 2007).

The variety of players involved in the political debate and investment in enhancing teacher quality brings different lenses through which they see the problem. Each school of thought represents a different theory of action based upon underlying assumptions and beliefs about how best to name the problem of teacher quality. Some view the problem as a supply and demand issue with the problem resting in the inputs. Simply stated, this group believes the profession is not attracting the “right” kind of people. Proponents supporting this argument are usually focused on teacher characteristics and qualifications in order to bring about the necessary changes to ensure quality teachers.

Included in the camp of input-focused arguments, others view the problem of teacher quality as a reflection of poor preparation. Those who support this stance are more likely to blame teacher preparation programs for the dilemma. Arguments related to low admission standards, incongruent curriculum, unrealistic preservice teaching practice, and insufficient content and pedagogical preparation are used to place blame on higher education institutions and teacher preparation programs (Liston, Borko, & Whitcomb, 2008).

Still, others are focused on the actual teacher practices (processes) which focus attention on the practices in and out of the classroom. Those who support this definition of teacher quality are focused on what teachers are actually doing and not what they bring with them to the profession. This notion of teacher quality turns attention away from paper credentials and more toward the planning, instructional delivery, classroom management, and interactions of teachers with students (Coggshall, 2007).

Finally, some define teacher quality as the student outputs produced by the teacher. In other words, teacher quality is actually more focused on teaching quality since it looks more at the result of teaching in terms of student achievement. While this view of teacher quality may be a more open way of examining teacher quality outside of paper qualifications, it does not provide a way of predicting quality teachers prior to entering the teaching field. Therefore, there is still benefit in considering a minimum standard for prospective teachers entering the profession.

While this portion of the literature investigates the wide array of definitions for “quality teacher,” the simple truth should not be ignored—if we want to work toward

closing the achievement gap, we must start with closing teacher quality gaps. According to Peske, Crawford and Pick (2006), “As much as we recognize the acute need to develop more sophisticated measures of teacher quality, there is no excuse for ignoring inequality we know exists based on the measures we have” (p. 1). Therefore, policymakers must work to reach consensus about what “teacher quality” means while ensuring that equity in the distribution of “quality” teachers, as currently defined in NCLB, is achieved. This can only happen when policymakers, educators, and other stakeholders are willing to explore the challenges associated with teacher quality through a comprehensive approach, one which gives merit to all facets of “teacher quality.” The next portion of this literature review turns the focus on teacher turnover and the underlying causes associated with teacher turnover that contribute to the inequitable distribution of teachers in high-poverty, low-performing schools.

Underlying Causes of Teacher Turnover in High-poverty, Low-performing Schools

In order to proactively address staffing inequities in hard-to-staff schools, district leaders and policymakers must turn to more comprehensive analyses to understand the underlying causes of the problem. By examining the pattern of events that create high rates of staff turnover in high-poverty, low performing schools, educational leaders can begin to develop policies and practices that ensure equitable distribution of teachers in hard-to-staff schools. To better understand the cycle that creates this dilemma, the Learning First Alliance (2005), a coalition of several educational agencies, developed the *Framework for Action* report which describes the cycle of turnover that exists in high-poverty, low-performing schools.

According to Learning First Alliance (2005), the cycle of events that creates high teacher turnover in high-poverty, low-performing schools is due to three continuous events (1) high-poverty, low-performing schools are more challenged attracting and hiring sufficient numbers of experienced applicants; (2) disadvantaged schools lose staff at a much higher rate than do other schools; and (3) disadvantaged schools are forced to hire inexperienced teachers to fill constant vacancies resulting from high attrition rates. Many districts have attempted to address staffing inequities with recruitment efforts to attract highly qualified staff; however, this alone will not solve the problem since high-poverty schools within a district are still faced with competing against more affluent schools for the staff. At the same time, concentrating solely on retention efforts does not ensure that disadvantaged schools will initially attain the most highly qualified candidates since they are still required to compete with other schools for staffing. The Learning First Alliance (2005) suggests, “We must create a better flow of highly qualified candidates *into* high-poverty schools at the same time that we stem the flow of good staff *out* of those schools” (p. 5).

In recent years, there have been many studies that have worked to shed light on the issue of recruiting, preparing, and retaining teachers for hard-to-staff schools. Some analysts argue that the inability to adequately staff high-poverty, low-performing schools is directly connected to “societal stratification processes” (Ingersoll, 2004, p.3). By not adequately staffing these schools, school districts are further marginalizing students and stratifying their educational opportunities. Aligned with this perspective is the notion that unequal access to qualified teachers and quality teaching is a primary factor in

unequal student educational, and ultimately, occupational outcomes (Rosenbaum, 1976; Oakes, 1990; Darling-Hammond, 1990; Kozol, 1991, as cited in Ingersoll, 2004). Few will argue that staffing inequities exist in high-poverty, low-performing schools, yet far too little has been done to address the various factors that contribute to the problem.

To address the many factors that contribute to the staffing gap, educational leaders must have a comprehensive understanding of quality-based management and the subsystem outputs that perpetuate the collective causes of the staffing gap including: (1) need for stronger leadership; (2) poor working conditions; (3) insufficient professional support; (4) weak incentives to teach in challenging schools; (5) inadequate preparation for work in high-poverty schools; (6) difficulties with hiring and placement; (7) policy incoherence; and (8) inadequate funding (Learning First Alliance, 2005; Berry, 2004).

The following section of this literature review does not serve to provide an exhaustive review of each of the subsystems and outputs that contribute to the staffing gap; rather, they briefly shed light on the processes by which each of the factors perpetuate the challenges in hiring and retaining quality teachers in hard-to-staff schools. Figure 1 summarizes the underlying causes and processes associated with teacher attrition in high-poverty, low-performing schools.

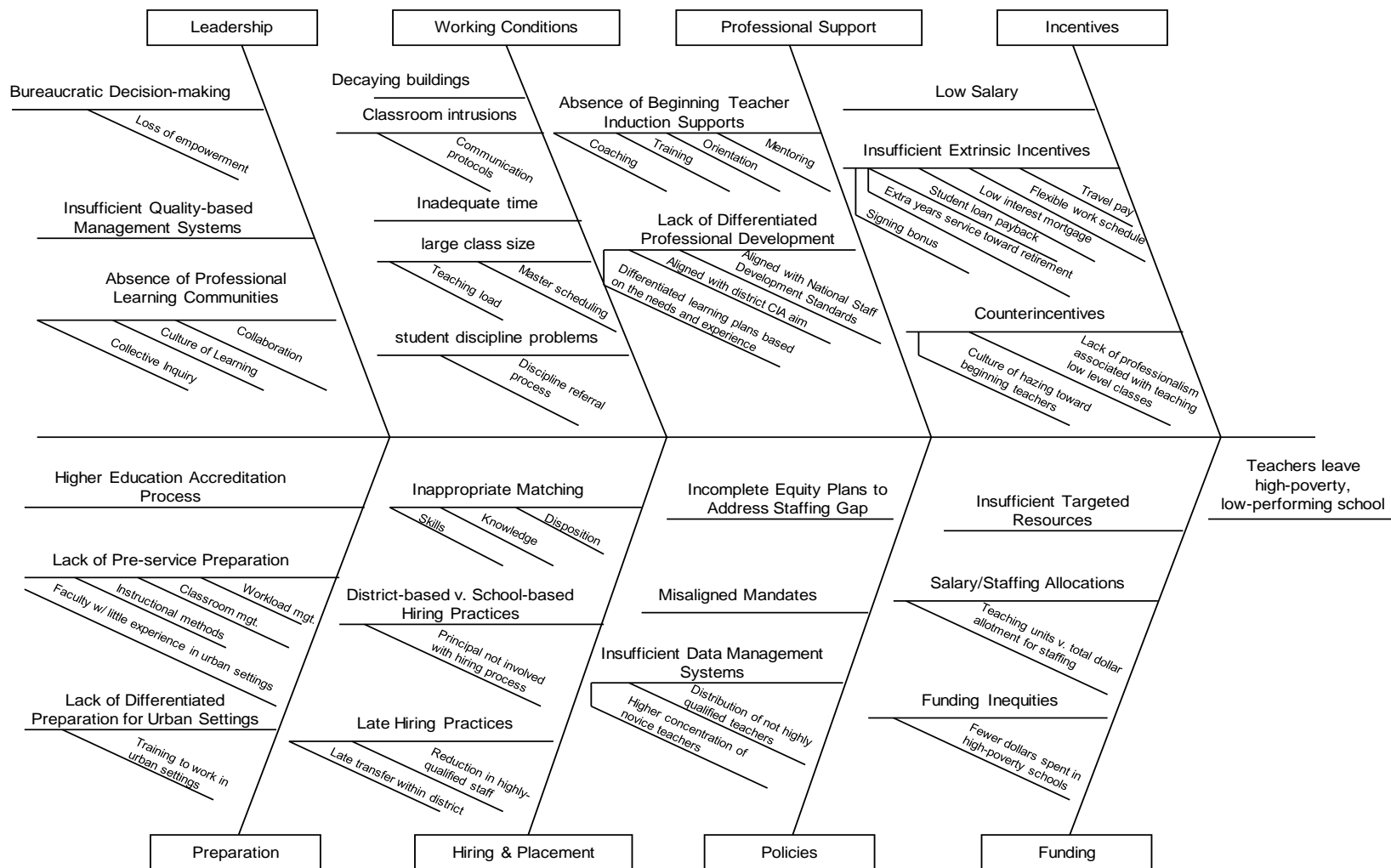


FIGURE 1. Cause and effect diagram of teacher attrition in high-poverty, low-performing schools due to dissatisfaction

Need for Stronger Leadership

Much has been written about the important role that leadership plays in fostering a collegial, collaborative school community. The recent emphasis on the role of principals has produced an emerging body of research which emphasizes the need to shift the role of the principal from a traditionally bureaucratic agent to a moral leader who leads with the heart, head, and hand (Sergiovanni, 1992). Sergiovanni (1992) describes his notion of collegiality as a professional virtue, which involves reciprocity between teachers and administrators to cooperate and provide support for carrying out professional responsibilities, as well as having the proper professional attitude and orientation. This can only be achieved when there are strong moral agents leading our most challenging schools.

Good principals work to provide a context for professional collaboration, communalism, and shared decision-making in which teachers are empowered to become leaders of change and school improvement. Ingersoll (2004) further supports this notion in his findings that lack of faculty influence is the second top reason for dissatisfied teachers leaving high-poverty schools. By fostering professional learning communities where teachers can collaborate and be a part of the decision-making process, both new and veteran teachers can contribute to overall school improvement and draw on each other's expertise. The ultimate impact of effective, moral leaders who can navigate through school issues with ethics of justice, critique, care, community and profession is increased social justice, racial equity, and student learning for our most challenged students (Begley, 2004; Enomoto, 1997; Furman, 2004; Starratt, 1991).

While effective principals are critical to the retention of quality teachers in hard-to-staff schools, recent emerging studies have also focused on the crucial roles that teacher leaders play in mentoring new faculty members, assisting in the decision-making process by virtue of their deep knowledge of their school and community, serving as model teachers to colleagues, and supporting overall school improvement (Barth, 2001; Lieberman & Miller, 2004, as cited in Lattimer, 2007). Effective department chairs, team leaders, and other teacher leaders are essential to a successful school; yet, they are rarely provided the formal training necessary to be successful and are often ill-prepared for the position and its multifaceted demands. Weller (2001) states, “neither ‘learning on the job’ nor ‘doing as their predecessors did’ constitute adequate training for effective job performance or for the preparation needed to perform their leadership responsibilities” (as cited in Gabriel, 2005, p. x). In order for a teacher leader to be successful, they must possess the capacity to communicate skillfully, manage resistance, lead change, and improve student achievement.

In addition, teacher leaders must find ways to build relationships and promote a positive climate and sense of community essential to high-performing schools. Far too often, our high poverty schools, with a limited supply of master teachers, are forced to rely upon novice teachers to assume such formal teacher leadership roles. In addition, these teacher leaders seldom receive the formal training necessary to prepare them for leading teams. This can lead to teacher dissatisfaction, which in turn, can lead to higher teacher attrition.

Poor Working Conditions

A second factor contributing to the staffing challenges is the working conditions that are often associated with high-poverty, low performing schools. Accounts of decaying buildings and inadequate facilities contribute to the struggle. Kozol (2005) describes the conditions found at one such school:

Fremont High School, as court papers filed in a lawsuit against the state of California document, has fifteen fewer bathrooms than the law requires. Of the limited number of bathrooms that are working in the school, “only one or two...are open and unlocked for girls to use.” Long lines of girls are “waiting to use the bathrooms,” which are generally “unclean” and “lack basic supplies,” including toilet paper. Some of the classrooms, as court papers also document, “do not have air conditioning,” so that students who attend school on a three-track schedule that runs year-round, “become red-faced and unable to concentrate” during “the extreme heat of the summer.” The school’s maintenance records report that rats were found in eleven classrooms. Rat droppings were found “in the bins and drawers” of the high school’s kitchen, and school records note that “hamburger buns” were being “eaten off [the] bread delivery rack.” (p.51)

Kozol’s graphic portrayal of poor facilities that foster not only poor working conditions, but more importantly, poor learning conditions, accounts for one of several factors that make it difficult for even the best teachers to endure. Other factors contributing to teachers’ perceptions of poor working conditions include classroom intrusions,

inadequate time, large class size, and student discipline problems (Ingersoll, 2004).

While Ingersoll's work is based on teachers from a variety of schools, those in urban schools compared to all teachers report lower levels of satisfaction with teaching resources and the lowest levels of teacher control over curricular and pedagogical issues (National Center for Education Statistics, as cited in Claycomb C., 2000). While salary does matter in recruiting teachers to urban school district and high-needs schools, employees often weigh the significant factors associated with the working conditions to the monetary pay-off before committing to employment in a high-poverty, low-performing school. Opportunities for advancement, difficulty on the job, physical working conditions, length of commute, flexibility of working hours, and demands on personal time are more significant than salary when weighing these factors (Prince, 2002). The struggle for staffing schools with poorer working conditions is best captured in one teacher's testimony,

You have to be a combination of a social worker and Mother Teresa to work in those schools. Those kids deserve decent education, but we as teachers deserve a decent work atmosphere. We deserve to be safe. I worked so hard to get my license, I did all this schooling, and the last thing I heard, America was a country of free choice. (Prince, 2002, p. 8)

New teachers often feel as though they have received a prison sentence rather than an opportunity in education when they are placed in schools where they feel ill-prepared to face the challenges associated with inadequate resources, preparation, and working conditions. When teachers do work in hard-to-staff schools with poor working

conditions, they do not tend to stay very long. While some leave the teaching profession altogether, others transfer to schools within the district where there are better working conditions and more manageable teaching loads. This disturbing fact is supported by recent studies which show that teachers systematically move away from high-poverty, high-minority, and low-performing schools into more affluent schools (Ingersoll, 2003).

Insufficient Professional Support

Novice teachers usually enter the teaching profession excited to be in the classroom and eager to make a difference in the lives of their students, yet many soon feel overwhelmed by isolation, expectations, challenges, and lack of support from colleagues and administrators (Kardos et al., 2001; NCCTQ, 2007; Rosenholtz & Simpson, 1990; Veenman, 1984; Worthy, 2005). Historically, the teaching profession has not provided comprehensive induction or the kind of professional support common to many other traditional professions (Waller, 1932; Lortie, 1975; Tyack, 1974, as cited in Smith & Ingersoll, 2004). Moreover, Smith and Ingersoll (2004) found less than 1% of beginning teachers received comprehensive induction. While teachers consistently interact with students throughout the day, traditionally it has often been done in isolation (Sizer, 1992; Johnson, 1990; Ingersoll, 2003b, as cited in Ingersoll, 2004). In addition, despite states' development of standards and statewide assessments, new teachers to the profession receive little or no guidance about what to teach or how to teach (Kauffman, Johnson, Kardos, Liu, & Peske, 2002). Without professional support, teachers feel ill-equipped and often struggle through the day-to-day routines of preparing content and materials. This is consistent with a federal study, conducted by the National Center for

Education Statistics, which shows “one out of three teachers does not feel prepared to use a variety of instructional methods in the classroom or to select and adapt appropriate instructional material, and 43% do not feel well prepared to handle classroom management and discipline” (as cited in Learning First Alliance, 2005, p. 10). Without support for coherent curriculum, not only do teachers struggle, but ultimately, student learning is compromised (Kauffman et al., 2002).

Recent studies further emphasize the urgent need for support that can directly impact the retention of teachers. According to several studies, “new teachers today enter the teaching profession with a tentative commitment to teaching (Peske, Liu, Johnson, Kauffman, & Kardos, 2001) and decide whether to continue teaching based on the support they receive at the school site and the success they experience with their students” (Johnson & Birkeland, 2003; as cited in Johnson, Kardos, Kauffman, Liu & Donaldson, 2004, p. 4). In general, lower levels of support in hiring, mentoring, and curriculum exist for teachers who work with low-income students than for those who teach high-income students (Johnson et al., 2004). The research clearly indicates the presence or absence of strong support systems for novice teachers makes a difference between staying in or leaving the profession (Ingersoll, 2001; Johnson et al., 2004; Kauffman et al., 2002; Smith & Ingersoll, 2004).

Weak Incentives to Teach in Challenging Schools

Since the inception of NCLB, states and districts have been scrambling to find ways to attract and retain highly qualified teachers, particularly in schools that serve large numbers of students from low-income homes and students of color. Increasing

numbers of states and districts have been searching for creative ways to recruit and keep good teachers. More than ever, districts are recognizing that a one-size-fits-all approach will not help to close the staffing gap that exists in our high-poverty, low-performing schools. While many districts have begun to take progressive measures to explore the incentives that will keep good teachers in our high-poverty schools, they are faced with the reality that not enough is being done to retain teachers in hard-to-staff schools.

Ingersoll (2001) found low salary is one of the main reasons teachers cite for leaving jobs in high-poverty urban schools. Studies in California and Texas also support money matters more when the job is more challenging (Prince, 2002). Moreover, Kirby, Naftel, and Verends (1999) found minority teachers in Texas were even more sensitive to pay and working conditions which is due in part to the high concentration and disproportionate distribution of teachers of color to schools underperforming and serving students from low-income homes and students of color (as cited in Prince, 2002).

Further compounding the issue are counterincentives that exist with some states' attempts to ensure that hard-to-staff schools are assigned the most qualified teachers. In 2000, New York City's Schools chancellor was directed by the commissioner to replace the uncertified teachers in high-poverty schools with certified teachers. This spawned an initiative for an incentive plan to help fill vacancies by increasing the starting salaries of experienced private and parochial school teachers who agreed to transfer into the hard-to-staff schools (Prince, 2002). Shortly following, pressure to implement involuntary transfers arose as a way to staff high-needs schools. This gave rise to much controversy

and resistance by teachers and educators across the city. In the end, the pressure from the teachers union, in the form of a lawsuit, halted any efforts to pursue such a practice.

The scenario in New York City unveils the dilemma that states and districts face when trying to find ways to entice teachers and, in some instances, force them to work in high-poverty schools. While districts are beginning to pursue more aggressive incentives, as opposed to mandates for staffing high-poverty schools, more comprehensive measures must be taken to address the barriers in staffing. Counteracting the barriers with appropriate incentives to address them such as signing bonuses, travel pay, extra years of service credited toward retirement, low-interest home mortgages, or flexible work schedules will assist in retaining teachers.

In addition to the lack of incentives mentioned above, weak contextual and professional incentives, as well as other counter incentives, exist within the school community. Teachers new to the profession often enter schools where a culture of “hazing” occurs. Often given the most difficult teaching assignments, new teachers flounder as they work to try to manage the load presented to them. While new teachers clearly are given the most challenging situations, veteran teachers are challenged by a lack of professionalism associated with remaining in a low-performing school. Many strive to teach more advanced courses that are limited in high-poverty schools. This culture of elevated professionalism for teaching “honors” and advanced placement courses also contributes to counter incentives for teaching in high-poverty, low-performing schools. (Haycock, 2000, as cited in Learning First Alliance, 2005)

Inadequate Preparation for Work in High-poverty Schools

The debates continue about how to adequately prepare teachers to become effective teachers in urban settings. According to federal survey data, “one out of three teachers does not feel prepared to use a variety of instructional methods in the” classroom or to select and adapt appropriate instructional materials, and 43% do not feel well prepared to handle classroom management and discipline” (National Center for Education Statistics, 2004, as cited in Learning First Alliance, 2005, p. 10) Additionally, another study reported that the majority of teachers believe teacher training program do “only a fair job of making sure educators are able to deal with pressures and stress of teaching” (Public Agenda, 2000, as cited in Learning First Alliance, 2005, p. 10). While these studies indicate the findings of new teachers entering the profession regardless of their teaching location, preparing new teachers for urban settings is even more critical for staffing and retaining teachers in urban settings.

Currently, many teacher preparation programs include faculty with little or no experience in working in urban settings with high percentages of students from low-income families and students of color (Claycomb, 2000). Preparation programs fail to incorporate specific program elements that can impact teacher candidates to work in urban settings (Claycomb, 2000). Martin Habberman’s (1995) work over a 30-year period in urban schools suggests programs which are successful in preparing urban teachers,

Study the relationship of language and culture to learning; emphasize the relationship between learning at school and at home; develop informed

sensitivity among candidates to diversity; require prolonged community experience with various cultural groups; place students in diverse, urban schools for their student teaching; and teach the dynamics of prejudice, social oppression, and economic equity (Claycomb, 2000, p. 19).

Habberman offers a road map for the focus in content needed in higher education to prepare teachers for the challenges they face; yet, few universities and teachers preparation programs are taking the necessary steps. Contributing to this is the role policymakers play in the equation. Until policymakers, who are responsible for accreditation requirements, begin to demand teacher preparation programs that require content that has been shown to develop urban teachers, districts will continue to be faced with candidates ill-prepared to successfully meet the growing challenges of urban school settings.

Difficulties with Hiring and Placement

Teaching can be strenuous for any teacher entering the teaching field, yet challenges associated with working with students in poverty are magnified when careful consideration is not given to the placement of teachers in high-poverty schools. The degree to which teachers are carefully matched to a teaching position based on their skills, knowledge, and dispositions can greatly influence the degree of success and effectiveness each teacher achieves (Johnson et al., 2004). Difficulties with hiring and placement can create significant barriers and further perpetuate staffing gaps in high-poverty schools. While many districts' hiring and placement is school-based, several districts are quick to hire teachers without involving schools. Out of desperation to fill a

teaching position in a high-poverty school, districts may hire a teacher without a formal interview process or without information as to whether the position will be a good match. This is supported by a recent study of Florida, Massachusetts, and Michigan which showed almost one in five new teachers in low-income schools are hired without an interview (Johnson et al., 2004).

Late hiring practices create additional problems which further exacerbate disparities in high-poverty schools. According to a recent study, 28% of new teachers in low-income schools are hired after the school year begins while only 8% of new teachers in wealthier schools faced the same dilemma (Johnson et al., 2004). This may be due, in part, to a domino effect of late hiring practices seen across the country. Beginning with late transfer dates within school districts, high-poverty schools are most challenged in finding teachers to fill the positions. As teachers from high-poverty schools transfer to more affluent schools, this creates a chain of events which leaves high-poverty schools scrambling to fill vacancies in the late summer months or after the start of school. According to Johnson and associates (2004), supportive hiring practices should be school-based and aim to give new teachers plenty of time to prepare for the challenges of assuming full-time teaching responsibilities.

Policy Incoherence

While policymakers strive to find ways to recruit and retain teachers, only small gains have been made in the way of addressing the challenge of staffing high-poverty schools. Under the NCLB law, states were required to submit equity plans in 2006 to the U.S. Department of Education outlining how they would measure, address, and

publicly report progress in eliminating the unfair distribution of teacher quality.

Different from the previous mandate of reporting highly qualified teachers, states were required to comply with the law by examining inequality in four areas which focus specifically on the opportunities afforded to students from low-income families and student of color:

1. whether low-income students are more likely than other students to be assigned to unqualified or out-of-field teachers in core academic courses;
2. whether minority students are more likely than other students to be assigned to unqualified or out-of-field teachers in core academic courses;
3. whether low-income students are more likely than other students to be taught by inexperienced teachers; and
4. whether minority students are more likely than other students to be taught by inexperienced teachers. (The Education Trust, 2006, p.2)

The Education Trust (2006) found,

The majority of states (34) merely restated the ‘highly qualified’ data they had previously reported. Only 10 states appropriately analyzed whether students of color were taught disproportionately by teachers who were not ‘highly qualified’. Only four states looked at whether students growing up in poverty were taught disproportionately by inexperienced teachers, and just three states – Ohio, Nevada, and Tennessee – looked at inequality in all four domains. (The Education Trust, 2006, p. 2)

Unless states begin to take the necessary steps to develop equity plans that examine the assignment of inexperienced teachers, we will never fully actualize the disparities that exist in the distribution of novice teachers. States can begin by taking steps to ensure data monitoring systems that disaggregate staffing data to illustrate the distribution of novice teachers and teachers not fully certified to teach high-poverty schools and schools with the highest populations of students of color. In addition, districts should form a committee for equity to examine existing policies and practices that perpetuate the staffing gap.

Inadequate Funding

Based on a recent report released by The Education Trust, the majority of all states that were analyzed provide fewer dollars per student to their highest-poverty school districts than do their lowest-poverty districts (Carey, 2004). The same can be said of schools with the most students from low-income homes and students of color compared to those with the fewest, estimating that high-poverty districts receive \$1,348 fewer dollars (Carey, 2004). While funding gaps exist between districts, significant gaps also exist between schools within districts (Roza & Hill, 2004). An example of this can be seen in the allocation of salaries in staffing schools. In many districts, staffing allocations are determined based on the teaching units assigned for individual schools. While this may seem like a fair way of allocating resources, it masks the inequities that exist. In most districts, salaries are determined based on years of teaching experience. Therefore, all things being equal, high-poverty schools that are allocated the same

number of teaching units as wealthier schools receive less money for salaries due to the base salaries of novice teachers that are prevalent in high-poverty schools.

While many districts across the nation are noble in their pursuit to address the staffing gap, often times, their narrow focus on only one or two of the existing factors that contribute to the staffing gap leaves them short of ever making a significant impact. To address the staffing gap, districts must recognize that a focus on one or two factors alone will not be enough to close the gap. Districts must commit to a process that will provide an honest treatment of a very complex problem, “one that builds on a realistic understanding of teachers and administrators as professionals who encounter perverse incentives in a lopsided labor market” (Learning First Alliance, 2005, p. 13).

To truly make a difference, districts must directly address the interconnected factors that drive the vicious “revolving door” cycle and keep the bigger picture in view in order to provide systemic solutions. Such an approach may feel daunting and overwhelming as districts struggle to prioritize during the initial planning and implementation phase. While a comprehensive approach may not be initially feasible and realistic for districts, they can begin to take steps that will lead to better solutions. To do so, educators, policymakers, and communities must collaborate to tackle the staffing problem. The Learning First Alliance (2005) embarked on such a collaborative work by involving 11 major national education associations representing teachers, principals, superintendents, school board members, teacher education colleges, curriculum developers, and parents. As a result of their work, a report was prepared and released which lays out a framework with promising strategies to close the staffing gap.

The framework proposes comprehensive and systemic changes across eight interrelated areas affecting the staffing gap which is used in conjunction with the previously mentioned underlying causes as the analytical framework for this study: (1) improve school leadership; (2) improve working conditions; (3) provide more and better professional support; (4) create incentives to work in challenging schools; (5) improve preparation for work in challenging schools; (6) streamline hiring and placement policies; (7) create a coherent set of policies to close the staffing gap; and (8) provide greater funding targeted to student needs. Each of these promising strategies is discussed further in the Conclusion section of this study.

The literature review presented in this section is intended to provide the necessary backdrop for examining teacher mobility within a fast-growing, urban-suburban Texas school district. While this district is not unique in the challenge it faces in attracting, developing, and retaining a talented workforce, the setting and context provides a timely and relevant opportunity to examine the increasing concerns related to retaining quality teachers within a competitive market. With many surrounding school districts competing for the top pool of teachers in a relatively small geographical area, the timing for this study illustrates the dilemma that many districts face, provides information grounded in literature to better understand teacher mobility and its root causes within a bounded system, and offers recommendations to help guide district leaders with policies and practices to ensure that every student has a quality classroom teacher.

CHAPTER III

METHODOLOGY

Practicing district and school leaders in public education are faced with complex problems for which there are no easy or simplistic solutions. The philosophical assumptions about the nature of reality, epistemology, values, the rhetoric of research, and methodology are all important considerations when contributing to bodies of knowledge in education (Creswell, 1994, as cited in Creswell, 2003). This researcher embraces the idea that “knowledge arises out of actions, situations, and consequences rather than antecedent conditions” (Creswell, 2003, p. 11). Making connections that apply theory to practice is the pragmatic inquiry needed to address complex and multidimensional problems from a practical position (Creswell, 2003). It is this concern with applications, what actually works, and solutions to problems that guides this researcher’s examination of the problem and methodology.

Population

The population for this study included 69 schools during the 2007-2008 school year within Growing Rapids ISD. Included in this study were 47 elementary schools, 14 middle schools, and 8 high schools. This was a sample of convenience, as it focused on results in one district and did not utilize random assignment. Teacher demographic data, including years of experience and highest degree earned, were generated by the district for the 6,066 teachers assigned to the 69 campuses. Student performance data utilized for this study were taken from students in grades 3-11 who took the TAKS test in April

2007. There were 58,721 students in grade 3-11 from the 69 schools who took the TAKS mathematics test and were included in this study. There were 60,470 students in grades 3-11 from the 69 schools who took the TAKS reading test and were included in this study. Finally, teacher mobility data from the 2007-2008 school year was generated by the district for the 69 campuses included in this study. Included in this data set were rates of mobility (e.g., teachers who left the district, transferred to another school within the district, and total mobility from campus). Data related to student ethnicity and students classified as economically disadvantaged, according to the state of Texas coding for those on free and reduced lunch, are presented in Table 1 to give the reader a description of the student population tested in mathematics and reading.

Table 1
Students Tested on 2007-2008 Math TAKS and Reading TAKS Test

Ethnicity and Socioeconomic Status	# of Students Tested (Math)	% of Total Tested (Math)	# of Students Tested (Reading)	% of Total Tested (Reading)
African American	9,464	16.1	9,501	15.7
Hispanic	20,894	35.6	20,949	34.6
White	24,711	42.1	24,759	40.9
Other	3,652	6.2	5,261	8.7
Economically Disadvantaged	19,763	33.7	19,823	32.3

Instrumentation

The first set of data, teacher quality variables, came from two different sources. A report with years of teaching experience and highest degree earned for each teacher assigned to each of the 69 campuses was generated by the district. Individual teacher information included in this data set was extracted and linked to other data sets in this

study. A report of teacher mobility data for each campus, including the percentage of teachers leaving the district (leavers), transferring to another campus within the district (movers), and total teacher mobility (leavers + movers) was also generated by the district.

The second set of data, student demographic data, was obtained from a district generated report provided by the research department. This report provided the number and percentage of students tested on the 2007-2008 TAKS tests in reading and math disaggregated by ethnicity and socioeconomic status for each of the 69 campuses. These data were used to establish the demographic profile for each campus. According to the director of the research department, there was no reason to believe that the students tested by ethnicity and socioeconomic status were not representative of the total population for each of the campuses.

The final data set, student performance data, was also obtained from the district generated report provided by the research department. Included in this report was the number and percentage of students by ethnicity that met the standard in math, met commended performance in math, met the standard in reading, and met commended performance in reading for each of the 69 campuses.

Each of these multiple data sets was utilized to create one data table that was imported into a SPSS data table in the program PASW Statistics 18. In the following section, descriptions of the methodologies utilized are described in more detail.

Procedures

Data collection. A database was created merging each of the data sets which captured continuous scores for each of the 69 schools within the Growing Rapids Independent School District included in this study. Data from the 2007-2008 school were collected for the following variables: 1) average years of teaching experience; 2) percentage of teachers with masters or above degrees; 3) percentage of student demographics by ethnicity; 4) percentage of students coded ED; and 5) percentage of students meeting standard or receiving commended performance on the 2007-2008 TAKS mathematics and reading test. Included in this database was also the continuous scores of teacher attrition variables from 2008 for each of the 69 campuses including: 1) percentage of teachers leaving district; 2) percentage of teachers transferring within district; and 3) percentage of total teacher mobility (within-district transfer + attrition from district) by campus.

Screening and cleaning the data. Data was screened by comparing continuous score variables with the three sources of data sets that were received to ensure that the data sets had been merged accurately into one data table. Categorical variables such as highest degree earned were checked for errors by comparing minimum and maximum values to ensure that each categorical variable was within the range of possible scores on that variable.

Preliminary analyses. Preliminary analysis for each correlation was conducted by analyzing histograms and scatterplots in order to check for violation of the assumptions of linearity and homoscedasticity. The categorical scores for degrees earned were recoded to create a new variable separating teachers with masters and above degrees from those with only bachelor degrees. The new categorical variable was then transformed into a continuous score indicating the percentage of teachers with masters or doctoral degrees earned. Additionally, the average number of years of experience for each of the 69 campuses was computed from teacher data collected. Finally, preliminary analyses of correlations between the percentage of African American students and all other variables and the percentage of Hispanic students and all other variables were so similar time after time that the decision was made to combine the percentage of African American and Hispanic students into one variable for this study. Descriptive statistics were checked for errors.

Conducting correlation analyses and *t*-tests. Pearson correlations were conducted to explore the relationship between variables in two different variable sets. Correlations conducted included: 1) the relationship between teacher quality variables and student demographic variables and 2) the relationship between student demographic variables and student performance variables. Correlations provided indication of the direction (positive or negative) and the strength of the relationship. Mentioned in the previous section, scatterplots and histograms were checked for violation of the assumptions of linearity and homoscedasticity. Scatterplots were checked for outliers, and the distribution of data points was inspected to verify that the appropriate statistical

technique was used to explore the relationship among these variables and to determine the direction of the relationship between the variables.

After running the correlation, several steps were conducted. First, the information about the sample was checked to ensure the number ($N = 69$) of cases was correct. Secondly, the direction (positive or negative) of the relationship between variables was determined. Next, the strength of the relationship between each of the variables was determined, according to Cohen (1988), following interpretation of strength in relationship: small ($r = .10 - .29$); medium ($r = .30 - .49$); large ($r = .50 - 1.0$). The Bonferroni approach was used for each correlation to control for Type I errors and to determine the p value required for significance for each set of correlations.

After correlations were analyzed, independent t -tests were conducted to compare the following: 1) lowest and highest school quartiles of teacher variables with student demographic data and 2) lowest and highest school quartiles of student demographic variables with student performance variables to determine if there were significant differences in the mean scores for each of the group comparisons. Histograms were used to ensure assumption of normality was met, and Levene's test was utilized to check for equality of variances as part of the t -tests. Additionally, the Bonferonni approach was used to control for Type I errors.

Conducting partial correlations. The final step of this study involved conducting partial correlations between the student demographic variables and the student performance variables while controlling for teacher quality variables in order to explore how teacher quality variables influence student performance variables. Again,

preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. Zero-order correlations were inspected to determine the effect on and the strength of the relationships between each of the variables for each of the partial correlations.

Data Analysis

There were several phases of analyses conducted in this study. During the first phase of the analyses, teacher quality variables and student demographic variables were correlated to determine the relationship among these two set of variables. Independent *t*-tests were also analyzed comparing the bottom and top quartiles of schools based on each of the teacher quality variables with each of the student demographic variables to compare differences in the means between each group. During the second phase of analyses, student demographic variables and student performance variables were correlated to determine the relationship between each variable in both sets. Again, independent *t*-tests were analyzed comparing the bottom and top quartiles of schools for each of the student demographic variables with each of the student performance variables to compare the differences in the means between each group. The following provides a more in-depth discussion of the steps employed during the data analyses in this study.

Phase I of analyses. The first phase of analyses involved several steps to examine the relationship between teacher quality variables and student demographic variables. During the first phase of the analyses, teacher quality variables and student demographic variables were compared to determine if there was a significant

relationship between the two sets of variables and the strength of those relationships. Preliminary analyses of descriptive statistics were conducted to check for missing data and to ensure no violation of the assumptions of normality, linearity and homoscedasticity. As part of this first phase, correlation matrices were utilized, specifically the Pearson correlation technique, to determine the relationship among the different variables (Gall, Gall, & Borg, 2007). The purpose of this phase of the analysis was to determine the extent to which each of the variables was correlated. The Bonferroni approach was used to control for Type I errors for each of the 21 correlations (Pallant, 2007).

The next step of this initial phase of analysis involved conducting independent-sample *t*-tests comparing the bottom and top quartiles of schools for each of the teacher quality variables with each of the student demographic variables. This step determined whether there was a significant difference between the highest and lowest quartiles of schools for each of the teacher variables with student demographics. Again, the Bonferroni approach was used to control for Type I errors for the 10 *t*-tests conducted.

The final step of this first phase of analysis compared the overall teacher mobility by lowest and highest school quartiles with the percentage of ED students and students of color taught in these schools. Results from the correlations and independent *t*-tests are discussed in Chapter IV.

Phase II of analyses. During the second phase of analysis, two steps were included: 1) correlations between student demographic variables and student academic performance were examined, and 2) the bottom and top quartiles of schools for each of

the student demographic variables were compared using independent *t*-tests. Student demographic variables examined included: 1) percentage of ED students and 2) percentage of students of color. Academic performance variables included: 1) percentage of students that met standard in math on TAKS; 2) percentage of students that met standard in reading on TAKS; 3) percentage of students that met commended performance in math on TAKS; and 4) percentage of students that met commended performance in reading on TAKS.

In the second set of correlation analyses, correlation coefficients were computed among the student demographic and student performance variables using the Bonferroni approach to control for Type I errors across the 15 correlations. Student demographic variables and student academic performance variables were compared to determine if there was a significant relationship between the two sets of variables and the strength of those relationships.

The next step of the second phase of analysis involved conducting independent *t*-tests comparing the bottom and top quartiles of each of the student demographic variables with each of the student performance measures. This determined whether there was a significant difference in the means between the highest and lowest quartiles of schools for each of the student demographic variables and student performance on state standardized tests (TAKS) in reading and math. The Bonferroni approach was used to control for Type I errors for the eight *t*-tests conducted.

Phase III of analyses. The final phase of the analyses included partial correlation analyses. Partial correlations were used to explore the relationship between student demographic variables (percentage of ED students and percentage of African American and Hispanic students combined) and student performance variables (percentage of student meeting standard in math and reading and percentage of students meeting commended performance in math and reading), while controlling for years of teaching experience and teacher mobility variables. Preliminary analyses were performed to ensure that there was no violation of the assumptions of normality, linearity and homoscedasticity. The Bonferroni approach was also used to control for Type I errors across the eight partial correlations conducted. Inspection of zero-order correlations assisted in determining how much of the variability could be explained by removing the effects of the control variable.

CHAPTER IV

RESULTS

To investigate whether GRISD had a staffing gap problem with lower quality, less experienced teachers being staffed at schools serving higher populations of ED students and students of color compared to schools serving higher populations of affluent, White students, and its effect on student performance, a three-phased quantitative analysis was conducted by the researcher. Phase I of the analysis established and explored the relationships between teacher quality variables and student demographic variables within GRISD. Phase II of the analysis established and explored the relationships between student demographic variables and student academic performance within GRISD. Finally, Phase III explored the relationship between student demographic variables and student academic performance with teacher quality effects removed.

Using PASW Statistics 18, the analysis was conducted by first running a Pearson correlation matrix for all of the 69 ($N = 69$) schools in the data set. Variables were categorized into three overarching variable sets: teacher quality variables, student demographic variables, and student performance variables. Specific variables used as indicators for teacher quality were: 1) percentage of teachers with masters or doctoral degrees (NCCTQ, 2007), 2) years of teaching experience (NCCTQ, 2007), and 3) percentage of teacher mobility, including those who resigned from the district and those who transferred to another school within the district. While teacher mobility may not be

widely considered a teacher quality variable, a high level of teacher mobility within a school certainly can be argued to affect the general teacher quality in that school (Learning First Alliance, 2005). Student demographic variables included: 1) percentage of students coded as ED and 2) the combined percentage of African American and Hispanic students tested in math and reading. Student performance variables were based on the TAKS and included: 1) percentage of students that met standard in math, 2) percentage of students that received commended performance in math, 3) percentage of student that met standard in reading, and 4) the percentage of students that received commended performance in reading.

The general steps of the analyses were as follows. The first phase included two steps. First, correlations between teacher quality variables and student demographic variables were examined. The Bonferroni approach was used to control for a Type I error for each of the correlations (Pallant, 2007). Second, *t*-tests were conducted comparing the top quartile on each teacher quality variable to the bottom quartile on each teacher quality variable. The second phase also included two steps. First, correlations between student demographic variables and student academic performance were examined with the Bonferroni approach used to control for a Type I error for each of the correlations. Second, *t*-tests were again conducted comparing the top and bottom quartiles of schools for each student demographic variable with each student demographic variable. The final phase of the analyses included partial correlation analyses between student demographic variables and student academic performance variables controlling for the effects of teacher quality variables as the control variable in

order to determine the relationship that teacher quality variables have on student achievement for economically disadvantaged students and African American and Hispanic students combined.

Phase I of Analyses

In the first set of correlation analyses, teacher quality variables, student demographics, and teacher mobility were compared. It should be noted that the student percentages based on ethnicity are actually percentages of students tested in math and reading; however, according to the district's staff from whom the data were obtained, there was no reason to believe the tested populations were not representative of each of the student groups within each school. Therefore, the tested populations of each student group in each school were considered representative of the total populations of each of the students groups in each school for this study.

Using Cohen's (1988) guidelines for strength of association measures, a strong association is considered $r \geq \pm .50$. A moderate association is considered when r falls between $\pm .30$ and $\pm .49$. A weak association is considered when r is between $\pm .30$.

Correlation coefficients were computed among the seven teacher quality and student demographic variables. Using the Bonferroni approach to control for Type I errors across the 21 correlations, a p value of less than .002 ($.05/21 = .002$) was required for significance. Table 2 indicates the correlations between teacher quality measures, student demographics, and teacher mobility. The results in Table 2 illustrate that 15 out of the 21 correlations were statistically significant.

Table 2
Pearson Product-Moment Correlations between Teacher Quality Measures, Student Demographics, and Teacher Mobility

Measure	1	2	3	4	5	6	7
1. % of teachers with masters or doctoral degrees		.158	.260	.070	-.0001	-.044	-.030
2. % of ED ^a students			.968*	-.635*	.393*	.420*	.566*
3. % of African American and Hispanic students				-.658*	.415*	.448*	.603*
4. Average years of teaching experience					-.320*	-.486*	-.576*
5. % of teachers who left district						.005	.565*
6. % of teachers transferred to another school within district							.825*
7. % of total teacher mobility (leavers + transfers)							

^a ED references the coding given by the state of Texas for students who are eligible to receive free and reduced lunch.

* $p < 0.002$, two-tailed.

According to the correlations found in Table 2, strong negative associations were found between average years of teaching experience and the percentage of ED students ($r = -.635$), the percentage of African American and Hispanic students combined ($r = -.658$), and total teacher mobility ($r = -.576$). These results suggest that teachers with fewer average years of teaching experience are more likely to teach in schools serving higher percentages of ED students and students of color. Additionally, these same teachers are more likely to leave their campus when compared to their more

experienced counterparts serving in more affluent schools with lower percentages of students of color.

Moderate negative associations were present for average years of teaching experience and the percentage of teachers who left district ($r = -.320$) and average years of teaching experience and the percentage of within-district teacher transfers ($r = -.486$).

Strong positive associations were also found during this phase of the analysis including associations between the percentage of total teacher mobility and the percentage of ED students ($r = .566$) and between the percentage of total teacher mobility and the percentage of African American and Hispanic students combined ($r = .603$). Moderate positive associations were found between the percentage of teachers leaving the district and the percentage of ED students ($r = .393$), percentage of teachers leaving the district and the percentage of African American and Hispanic students combined ($r = .415$), the percentage of within-district transfers and the percentage of ED students ($r = .420$), and between the percentage of within-district transfers and the percentage of African American and Hispanic students combined ($r = .448$). All of the correlations between total teacher mobility and the students served were significant. This suggests that schools that serve students of color and ED students are less likely to retain experienced teachers. Moreover, teachers who teach in schools serving high percentages of economically disadvantaged students and African American and Hispanic students are more likely to transfer to another school within the district. The combination of both factors results in a decrease of teacher quality in schools serving higher percentages of ED, African American, and Hispanic students. The next step of this

initial phase of analysis involved conducting independent-sample *t*-tests comparing the bottom and top quartiles of schools based on the teacher quality variables with each of the student demographic variables. This was performed to determine if there was a significant difference between the highest and lowest quartiles of each of the teacher variables with student demographics. Using the Bonferroni approach to control for Type I errors across the 10 *t*-tests conducted, a *p* value of less than .005 ($.05/10 = .005$) was required for significance. All tests were two-tailed and significant at the .005 level. Effect sizes were calculated to determine the magnitude of the differences between each group. Cohen's (1988) guideline for interpreting the effect size was utilized (.01 = small effect; .06 = moderate effect; and .14 = large effect). Results from the independent *t*-tests are indicated in the following sections. Each section illustrates the results for each teacher quality variable by each dependent variable group (ED students and students of color).

Research question 1. Is there a difference between the top and bottom quartiles of schools based on the percentage of teachers earning masters or above degrees between schools serving a higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentage of ED students and African American and Hispanic students combined?

Table 3 shows the comparison of the difference between the lowest and highest quartiles of schools based on teachers with master degrees or higher by percentages of ED students. There was no significant difference in the percentage of ED students when comparing schools with the lowest quartile of teachers with master or above degrees (*M*

= 31.61, $SD = 21.48$) and the highest quartile of teacher with master or above degrees ($M = 39.21$, $SD = 19.44$; $t(40) = -1.19$, $p = .241$). The magnitude of the differences in the means (mean difference = -7.602, 95% CI: -20.499 to 5.296) was small ($\eta^2 = .034$).

Table 3
Lowest and Highest Quartile Schools Based on Percentage of Teachers with Master or Doctoral Degrees Compared by Percentages of ED Students

	Teachers with Master or Doctoral Degrees	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of ED Students	Lowest Quartile of Percentages of Teachers with Master or Doctoral Degrees	23	31.61	21.48	-1.19	> .005
	Highest Quartile of Percentages of Teachers with Master or Doctoral Degrees	19	39.21	19.44		

Table 4 shows the comparison of the difference between the lowest and highest quartiles of schools based on teachers with master degrees or higher by percentages of students of color. There was no significant difference in the percentage of students of color with the lowest quartile of teachers with masters or above degrees ($M = 44.17$, $SD = 23.14$) and the highest quartile of teacher with master or above degrees, $M = 58.53$, $SD = 18.43$; $t(40) = -2.19$, $p = .034$. The magnitude of the differences in the means (mean difference = -14.352, 95% CI: -27.603 to -1.102) was moderate to large ($\eta^2 = .107$).

Table 4
Lowest and Highest Quartile Schools Based on Master or Doctoral Teaching Degrees
Compared by Percentages of African American and Hispanic Students Combined

	Teachers with Master or Doctoral Degrees	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
African American and Hispanic Students Combined	Lowest Quartile of Percentages of Teachers with Master or Doctoral Degrees	23	44.17	23.14	-2.19	>.005
	Highest Quartile of Percentages of Teachers with Master or Doctoral Degrees	19	58.53	18.43		

Research question 2. Is there a difference between the top and bottom quartiles of schools based on the average number of years of teaching experience between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?

Table 5 illustrates the comparison of the difference between the lowest and highest quartiles of schools based on teaching experience by percentages of ED students. A significant difference was noted between schools with the least experienced teachers ($M = 55.76$, $SD = 17.89$) and most experienced teachers, $M = 23.59$, $SD = 12.93$; $t(32) = 6.01$, $p = .000$ and the percentage of ED students within the schools they teach. The magnitude of the differences in the means (mean difference = 32.176, 95% CI: 21.273 to 43.080) was very large ($\eta^2 = .530$).

Table 5
Lowest and Highest Quartile Schools Based on Teaching Experience Compared by Percentages of ED Students

	Teacher Experience	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of ED Students	Least Experienced	17	55.76	17.89	6.01	<.005
	Most Experienced	17	23.59	12.93		

Table 6 shows the comparison of the difference between the lowest and highest quartiles of schools based on teaching experience by percentages of African American and Hispanic students combined. As illustrated in Table 6, a significant difference was found between schools with the least experienced teachers ($M = 72.41$, $SD = 16.75$) and most experienced teachers, $M = 36.76$, $SD = 16.15$; $t(32) = 6.32$, $p = .000$ and the percentage of students of color within each of these quartiles. The magnitude of the differences in the means (mean difference = 35.647, 95% CI: 24.153 to 47.141) was very large ($\eta^2 = .555$).

Table 6
Lowest and Highest Quartile Schools Based on Teaching Experience Compared by Percentages of African American and Hispanic Students Combined

	Teacher Experience	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of African American and Hispanic Students Combined	Least Experienced	17	72.41	16.75	6.32	<.005
	Most Experienced	17	36.76	16.15		

Research question 3. Is there a difference between the top and bottom quartiles of schools based on the percentage of teachers leaving the district between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?

When comparing student demographics with teacher mobility variables, there was no significant difference found in the percentage of teachers leaving the district when comparing schools that serve higher percentages of ED students and African American and Hispanic students combined. Table 7 illustrates the comparison of the difference between the lowest and highest quartiles of schools based on teachers leaving the district by percentages of ED students. No significant difference was seen in the percentage of ED students in schools with the lowest percentage of teachers leaving the district ($M = 31.09$, $SD = 21.31$) and the highest percentage of teachers leaving the district, $M = 44.61$, $SD = 21.76$; $t(44) = -2.13$, $p = .039$. The magnitude of the differences in the means (mean difference = -13.522 , 95% CI: -26.321 to $-.723$) was moderate ($\eta^2 = .093$).

Table 7
Lowest and Highest Quartile Schools Based on Percentage of Teachers Leaving District Compared by Percentages of ED Students

Teachers Leaving District		<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of ED Students	Lowest	23	31.09	21.31	-2.13	>.005
	Percentage Leaving District					

Table 7 (Continued)

Teachers Leaving District	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Highest Percentage Leaving District	23	44.61	21.76		

Table 8 shows the comparison of the difference between the lowest and highest quartiles of schools based on teachers leaving the district and the percentages of African American and Hispanic students taught within the schools these teachers taught before leaving. Again, there was no significant difference reflected in the percentage of African American and Hispanic students combined in schools with the lowest percentage of teachers leaving the district ($M = 44.17$, $SD = 21.95$) and the highest percentage of teachers leaving the district, $M = 61.04$, $SD = 21.19$; $t(44) = -2.65$, $p = .011$ and the students of color taught at the schools within each of these quartiles. The magnitude of the differences in the means (mean difference = -16.870 , 95% CI: -29.690 to -4.049) was large ($\eta^2 = .138$).

Table 8
Lowest and Highest Quartile Schools Based on Percentage of Teachers Leaving District Compared by Percentages of African American and Hispanic Students Combined

	Teachers Leaving District	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of African American and Hispanic Students Combined	Lowest Percentage Leaving District	23	44.17	21.95	-2.65	>.005
	Highest Percentage Leaving District	23	61.04	21.19		

Research question 4. Is there a difference between the top and bottom quartiles of schools based on the percentage of teachers transferring to another school within the district between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?

Significant differences were found in both the percentage of ED students and African and Hispanic students served at these schools and the top and bottom quartiles of within-district teacher transfers. Table 9 illustrates the comparison of the difference between the lowest and highest quartiles of schools based on teachers transferring to another school within the district compared by percentages of ED students. As indicated in Table 9, comparing the lowest quartile of transfers ($M = 25.96$, $SD = 21.42$) and the highest quartile of transfers, $M = 50.65$, $SD = 17.54$; $t(38) = -3.88$, $p = .000$, it is evident that teachers serving high populations of ED students were more likely to transfer to another school within the district. The magnitude of the differences in the means (mean difference = -24.691 , 95% CI: -37.560 to -11.821) was very large ($\eta^2 = .255$).

Table 9
Lowest and Highest Quartile Schools Based on Percentage of Within-district Teacher Transfers Compared by Percentages of ED Students

	Within-district Teacher Transfers	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of ED Students	Lowest Percentage of Within-district Teacher Transfers	23	25.96	21.42	-3.88	<.005

Table 9 (Continued)

Within-district Teacher Transfers	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>P</i>
Highest Percentage of Within-district Teacher Transfers	17	50.65	17.54		

Table 10 reflects the comparison of the difference between the lowest and highest quartiles of within-district teacher transfers and the percentages of African American and Hispanic students taught within these schools. As previously indicated, there was also a significant difference between the lowest quartile of transfers ($M = 41.43$, $SD = 21.75$) and the highest quartile of transfers, $M = 76.00$, $SD = 16.65$; $t(38) = -4.04$, $p = .000$ and the percentage of African American and Hispanic students they serve. The magnitude of the differences in the means (mean difference = -25.565 , 95% CI: -38.363 to -12.769) was very large ($\eta^2 = .300$).

Table 10
Lowest and Highest Quartile Schools Based on Percentage of Within-district Teacher Transfers Compared by Percentages of African American and Hispanic Students Combined

	Within-district Teacher transfers	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of African American and Hispanic Students Combined	Lowest Percentage of Within-district Teacher Transfers	23	41.43	21.75	-4.04	<.005
	Highest Percentage of Within-district Teacher Transfers	17	67.00	16.65		

Research question 5. Is there a difference between the top and bottom quartiles of schools based on the percentage of total teacher mobility between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?

In both instances, there was a significant difference. Table 11 shows the comparison of the difference between the lowest and highest quartiles of schools based on total teacher mobility and the percentages of ED students within the schools these teachers taught before leaving. A significant difference was seen in the percentage of ED students in schools with the lowest percentage of total teacher mobility ($M = 21.57$, $SD = 14.62$) and the highest percentage of total teacher mobility, $M = 54.70$, $SD = 15.37$; $t(39) = -7.07$, $p = .000$ and the percentage of ED students taught at the schools within each of these quartiles. The magnitude of the differences in the means (mean difference = -33.129 , 95% CI: -42.601 to -23.656) was very large ($\eta^2 = .562$).

Table 11
Lowest and Highest Quartile Schools Based on Percentage of Total Teacher Mobility Compared by Percentages of ED Students

	Total Teacher Mobility	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of ED Students	Lowest	21	21.57	14.62	-7.07	<.005
	Highest	20	54.70	15.37		

Table 12 illustrates the comparison of the difference between the lowest and highest quartiles of schools based on total teacher mobility and the percentages of African American and Hispanic students within the schools these teachers taught before leaving. As shown, a significant difference was seen between the lowest quartile of total teacher mobility ($M = 35.14$, $SD = 15.90$) and the highest quartile of total teacher mobility, $M = 71.25$, $SD = 14.63$; $t(39) = -7.56$, $p = .000$ and the percentage of African American and Hispanic students combined taught at the schools within each of these quartiles. The magnitude of the differences in the means (mean difference = -36.107 , 95% CI: -45.774 to -26.441) was very large ($\eta^2 = .594$).

Table 12
Lowest and Highest Quartile Schools Based on Percentage of Total Teacher Mobility Compared by Percentages of African American and Hispanic Students Combined

	Total Teacher Mobility	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of African American and Hispanic Students Combined	Lowest	21	35.14	15.90	-7.56	<.005
	Highest	20	71.25	14.63		

In summary, when exploring the relationships between “teacher quality” variables and “student demographic” variables, several strong and significant associations were found. When comparing the highest and lowest quartiles of schools based on the average years of teaching experience, there was a significant difference observed in the percentage of ED students and the percentage of African American and

Hispanic students combined. Similarly, there was a strong and significant relationship found between two of the mobility variables, including the percentage of within-district transfers and total teacher mobility and the percentage of ED students and the percentage of African American and Hispanic students combined. Collectively, the findings of the first phase of the analysis support the argument that a teacher quality gap exists between schools serving higher percentages of ED students and African American and Hispanic students compared to schools serving students from more affluent backgrounds and White students. No significant difference was found between the top and bottom quartiles of schools based on the percentage of teachers with advanced degrees and the percentage of ED students; the percentage of teachers with advanced degrees and the percentage of African American and Hispanic students combined; the top and bottom quartiles of schools based on the percentage of teachers leaving the district and the percentage of ED students; and the percentage of teachers leaving the district and percentage of African American and Hispanic students combined. These findings suggest that there is not an equity gap in the percentage of teachers with advanced degrees, and there is not a difference in teachers leaving the district between schools serving higher percentages of ED students and African American and Hispanic students.

Phase II of Analyses

During the second phase of analysis, two steps were included: 1) correlations between student demographic variables and student academic performance were examined, and 2) the bottom and top quartiles of schools, based on each of the student demographic variables, were compared using independent *t*-tests. Student demographic

variables examined included: 1) the percentage of ED students and 2) the percentage of African American and Hispanic students combined. Academic performance variables examined included: 1) the percentage of students that met standard in math on TAKS; 2) the percentage of students that met standard in reading on TAKS; 3) the percentage of students that met commended performance in math on TAKS; and 4) the percentage of students that met commended performance in reading on TAKS.

Correlation coefficients were computed among the six student demographic and student performance variables. Using the Bonferroni approach to control for Type I errors across the 15 correlations, a p value of less than .003 ($.05/15 = .003$) was required for significance. The results in Table 13 showed that 15 out of the 15 correlations were statistically significant. Student demographic variables and student academic performance variables were compared to determine if there was a significant relationship between the two sets of variables and the strength of those relationships. Again, it should be noted that the student percentages based on ethnicity are actually percentages of students tested in math and reading; however, the tested populations of each student group in each school is considered representative of the total population of each of the students groups in each school for this study

Table 13
Pearson Product-Moment Correlations between Student Demographics and Student Performance Measures

Measure	1	2	3	4	5	6
1. % of African American and Hispanic Students Tested			-.517*	-.860*	-.720*	-.816*

Table 13 (Continued)

Measure	1	2	3	4	5	6
2. % of Students that Met Standard in Math				.441*	.878*	.387*
3. % of Students that Met Standard in Reading					.593*	.875*
4. % of Students that Met Commended Performance in Math						.511*
5. % of Students that Met Commended Performance in Reading						

^aEconomically disadvantaged references the coding given by the state of Texas for students who are eligible for free and reduced lunch.

* $p < 0.003$ (2-tailed).

Based on the correlation analyses in Table 13, there were strong negative associations found between the following: 1) the percentage of ED students and the students that met standard in reading on TAKS ($r = -.885$); 2) the percentage of ED students and the students that reached commended performance in math on TAKS ($r = -.644$); 3) the percentage of ED students and the students that and reached commended performance in reading on TAKS ($r = -.819$); 4) the percentage of African American and Hispanic students combined and the students that met standard in math on TAKS ($r = -.517$); 5) the percentage of African American and Hispanic students combined and the students that met standard in reading on TAKS ($r = -.860$); 6) the percentage of African American and Hispanic students combined and the students that reached commended performance in math on TAKS ($r = -.720$); and 7) the percentage of African American and Hispanic students combined and the students that reached commended performance in reading on TAKS ($r = -.816$). A moderate negative association was found between the

percentage of ED students and the students that met standard in math on TAKS ($r = -.409$).

The next step of the second phase of analysis involved conducting independent t -tests comparing the bottom and top quartiles, or each of the student demographic variables, with each of the student performance measures to evaluate whether there was a significant difference between the highest and lowest quartiles of schools based on each of the student demographic variables and student performance on state standardized tests (TAKS) in reading and math. Using the Bonferroni approach to control for Type I errors across the eight t -tests conducted, a p value of less than .006 ($.05/8 = .006$) was required for significance. All tests were two-tailed.

Research question 6. Is there a difference between the top and bottom quartiles of schools based on the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?

A significant difference was found in each comparison. As seen in Table 14, a significant difference was seen between schools serving lower percentages of ED students ($M = 94.25$, $SD = 17.89$) and schools serving higher percentages of ED students, $M = 83.47$, $SD = 4.55$; $t(31) = 5.22$, $p = .000$ and the percentage of students that met standard in math on TAKS test. The magnitude of the differences in the means (mean difference = 10.779, 95% CI: 6.568 to 14.990 was very large ($\eta^2 = .467$).

Table 14
Lowest and Highest Quartile Schools Based on Percentage of ED Students Compared by Percentages of Students that Met Standard on the TAKS Math Test

	ED Students	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage Met Standard on TAKS Math Test	Low Poverty	16	94.25	4.55	5.22	<.006
	High Poverty	17	83.47	6.97		

Additionally, when comparing the lowest and highest quartile schools based on percentage of African American and Hispanic students combined compared by percentages of students that met standard on the TAKS math test (see Table 15), a significant difference was found. The lowest quartile of schools based on percentage of African American and Hispanic students combined had a much higher percentage of students that met the standard on the math TAKS test ($M = 93.83$, $SD = 4.20$) compared to the highest quartile of schools based on the percentage of students of color, $M = 83.67$, $SD = 6.82$; $t(34) = 5.39$, $p = .000$. The magnitude of the differences in the means (mean difference = 10.167, 95% CI: 6.330 to 14.003 was very large ($\eta^2 = .460$).

When the lowest and highest quartile of schools based on percentage of ED students were compared by percentages of student that received commended performance on the TAKS math test (see Table 16), there was a significant difference found. Schools with the lowest percentages of ED students were less likely to meet commended performance on the math TAKS test ($M = 52.25$, $SD = 12.11$) than the highest quartile of schools based on percentage of ED students, $M = 27.53$, $SD = 7.16$;

$t(31)=7.20, p = .000$. The magnitude of the differences in the means (mean difference = 24.721, 95% CI: 17.710 to 31.731 was very large ($\eta^2 = .698$).

Table 15
Lowest and Highest Quartile Schools Based on Percentage of African American and Hispanic Students Combined Compared by Percentages of Students that Met Standard on the TAKS Math Test

	African American and Hispanic Students	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage Met Standard on TAKS Math Test	Low African American and Hispanic Students Combined	18	93.83	4.20	5.39	<.006
	High African American and Hispanic Students Combined	18	83.67	6.82		

Table 16
Lowest and Highest Quartile Schools Based on Percentage of ED Students Compared by Percentages of Students that Received Commended Performance on the TAKS Math Test

	ED Students	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of Commended Performance on TAKS Math Test	Low Poverty	16	52.25	12.11	7.20	<.006
	High Poverty	17	27.53	7.16		

Similarly, when comparing the lowest and highest quartile of schools based on percentage of African American and Hispanic student combined compared by

percentages of students that received commended performance on the TAKS math test (see Table 17), a significant difference was found. The lowest quartile of schools based on percentage of African American and Hispanic students combined had a much higher percentage of students that received commended performance on the math TAKS test ($M = 51.67$, $SD = 11.37$) compared to the highest quartile of schools based on the percentage of students of color, $M = 27.61$, $SD = 7.00$; $t(34) = 7.66$, $p = .000$. The magnitude of the differences in the means (mean difference = -24.056, 95% CI: 17.673 to 30.438) was very large ($\eta^2 = .633$).

Table 17
Lowest and Highest Quartile Schools Based on Percentage of African American and Hispanic Students Combined Compared by Percentages of Students that Received Commended Performance on the TAKS Math Test

	African American and Hispanic Students Combined	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of Commended Performance in TAKS Math Test	Low African American and Hispanic Students Combined	18	51.67	11.37	7.66	<.006
	High African American and Hispanic Students Combined	18	27.61	7.00		

Research question 7. Is there a difference between the top and bottom quartiles of schools based on the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED

students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined?

A significant difference was found when comparing the top and bottom quartiles of schools based on the percentage of ED students and African American and Hispanic student combined with the percentage of students that met standard and commended performance in reading. Table 18 reflects the difference in the means between the lowest poverty quartile ($M = 96.63$, $SD = 1.96$) and the highest poverty quartile, $M = 85.06$, $SD = 3.91$; $t(31)=10.63$, $p = .000$ and students that met standard in reading on the TAKS test. The magnitude of the differences in the means (mean difference = 11.566, 95% CI: 9.346 to 13.786 was very large ($\eta^2 = .785$).

Table 18
Lowest and Highest Quartile Schools Based on Percentage of ED Students Compared by Percentages of Students that Met Standard on the TAKS Reading Test

	ED Students	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage Met Standard on TAKS Reading Test	Low Poverty	16	96.63	1.96	10.63	<.006
	High Poverty	17	85.06	3.913		

Similarly, Table 19 reflects the significant difference found when comparing the lowest and highest quartiles of schools based on percentage of African American and Hispanic students combined and the percentage of students that met standard on the reading TAKS test. The lowest quartile of schools based on percentage of African American and Hispanic students combined had a much higher percentage of students

that met the standard on the reading TAKS test ($M = 95.94$, $SD = 2.34$) compared to the highest quartile of schools based on the percentage of African American and Hispanic students combined, $M = 85.72$, $SD = 3.86$; $t(34) = 10.08$, $p = .000$. The magnitude of the differences in the means (mean difference = 10.722, 95% CI: 8.561 to 12.883) was very large ($\eta^2 = .749$).

Table 19
Lowest and Highest Quartile Schools Based on Percentage of African American and Hispanic Students Combined Compared by Percentages of Students that Met Standard on the TAKS Reading Test

	African American and Hispanic Students Combined	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage Met Standard on TAKS Reading Test	Low African American and Hispanic Students Combined	18	95.94	2.34	10.08	<.006
	High African American and Hispanic Students Combined	18	85.72	3.86		

Schools with the lowest percentages of ED students (see Table 20) were less likely to meet commended performance on the reading TAKS test ($M = 51.56$, $SD = 10.89$) than the highest quartile of schools based on percentage of ED students, $M = 24.06$, $SD = 7.45$; $t(31) = 8.51$, $p = .000$. The magnitude of the differences in the means (mean difference = 27.504, 95% CI: 20.912 to 34.095) was very large ($\eta^2 = .700$).

Additionally, when comparing the lowest and highest quartile schools based on the percentage of African American and Hispanic students combined compared by the percentages of students that received commended performance on the TAKS reading test (see Table 21), a significant difference was found. The lowest quartile of schools, based on the percentage of African American and Hispanic students combined, had a much higher percentage of students that received commended performance on the reading TAKS test ($M = 49.50$, $SD = 11.63$) compared to the highest quartile of schools based on the percentage of African American and Hispanic students combined, $M = 24.28$, $SD = 7.29$; $t(34) = 7.80$, $p = .000$. The magnitude of the differences in the means (mean difference = 25.222, 95% CI: 18.648 to 31.796) was very large ($\eta^2 = .641$).

Table 20
Lowest and Highest Quartile Schools Based on Percentage of ED Students Compared by Percentages of Students that Received Commended Performance on TAKS Reading Test

ED Students		<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of Commended Performance on TAKS Reading Test	Low Poverty	16	51.56	10.89	8.51	<.001
	High Poverty	17	24.06	7.45		

These results suggest that there were significant differences in student performance on math and reading when comparing schools that served higher percentages of ED students and African American and Hispanic students and those that served lower percentages of ED students and African American and Hispanic students.

In each instance of comparing commended performance scores, the difference in means was very large.

Table 21
Lowest and Highest Quartile Schools Based on Percentage of African American and Hispanic Students Combined Compared by Percentages of Students that Received Commended Performance on the TAKS Reading Test

	African American and Hispanic Students Combined	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Percentage of Commended Performance on TAKS Reading Test	Low African American and Hispanic Students Combined	18	49.50	11.63	7.80	<.006
	High African American and Hispanic Students Combined	18	24.28	7.29		

Phase III of Analyses

The final phase of the analyses included partial correlation analyses in order to examine the degree that two variables are linearly related, partitioning out the effects of the control variable. In other words, partial correlations removed the influence of variable A on variable B (the independent or predictor variable) and variable C (the criterion variable) (Gall, Gall, & Borg, 2007). Partial correlations were used to explore the relationship between student demographic variables (percentage of ED students and percentage of African American and Hispanic students combined) and student performance variables (percentage of students meeting standard in math and reading and percentage of students meeting commended performance in math and reading) while partitioning out the effects of the years of teaching experience and teacher mobility. To

accomplish this, the r-squared (coefficient of determination) for the zero-order correlations and the partial correlations were calculated. Next, the difference between the r-squared and zero-order correlation was examined to determine the percent of variability that can be explained when partitioning out the effects of a control variable. A p value of less than .006 ($.05/8=.006$) for each of the partial correlations conducted was required for significance while using the Bonferroni approach to control for Type I errors across each of the sets of partial correlations.

Research question 8. Is there a difference in the percentage of students that met standard and commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for years of teaching experience?

The coefficient of determination for the zero order correlation between percentage of ED students and their commended math performance was $r^2 = .415$ which indicates that 41.5% of the variability in the commended math performance can be explained by knowing socioeconomic status. When controlling for teaching experience, the coefficient of determination for the partial correlation between the percentage of ED students and students that met the commended performance standard in math was $r^2 = .352$ ($n = 66, p < .006$) which indicates that teaching experience accounts for 6.3% of the variability observed. The coefficient of determination for the zero order correlation between ED students and their met standard math performance was $r^2 = .167$ which indicated that 16.7% of the variability in math met standard can be explained by

knowing socioeconomic status. When controlling for teaching experience, the partial correlation between percentage of ED students and met standard in math was $r^2 = .138$ ($n = 66, p > .006$) which is not at the significant level.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard math performance was $r^2 = .267$ which indicates that 26.7% of the variability in math met standard can be explained by knowing ethnicity. When controlling for teaching experience, the coefficient of determination for the partial correlation between the percentage of African American and Hispanic students combined and students that met standard in math was $r^2 = .272$ ($n = 66, p < 0.006$) which indicates that teaching experience only accounts for .5% of the variability observed. The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their commended math performance was $r^2 = .518$ which indicates that 51.8% of the variability in the commended math performance can be explained by knowing ethnicity. When controlling for teaching experience, the coefficient of determination for the partial correlation between African American and Hispanic student combined and students that met the commended performance in math was $r^2 = .497$ ($n = 66, p < 0.006$) which indicates that teaching experience accounts for 2.1% of the variability observed.

Research question 9. Is there a difference in the percentage of students that met standard and commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and

schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for years of teaching experience?

The coefficient of determination for the zero order correlation between ED students and their met standard reading performance was $r^2 = .783$ which indicates that 78.3% of the variability in reading met standard can be explained by knowing socioeconomic status. When controlling for teaching experience, the coefficient of determination for the partial correlation between ED student and students that met standard in reading was $r^2 = .676$ ($n = 66, p < 0.006$) which indicates that teaching experience accounts for 10.7% of the variability observed. The coefficient of determination for the zero order correlation between ED students and their commended reading performance was $r^2 = .671$ which indicates that 67.1% of the variability in commended reading performance can be explained by knowing socioeconomic status. When controlling for teaching experience, the coefficient of determination for the partial correlation between ED students and students that met commended performance standard was $r^2 = .567$ ($n = 66, p < 0.006$) which indicates that teaching experience accounts for 10.4% of the variability observed.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard reading performance was $r^2 = .740$ which indicates that 74.0% of the variability in reading met standard can be explained by knowing ethnicity. When controlling for teaching experience, the coefficient of determination for the partial correlation between African American and

Hispanic students combined and students that met standard in reading was $r^2 = .612$ ($n = 66, p < 0.006$) which indicates that teaching experience accounts for 12.8% of the variability observed. The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their commended reading performance was $r^2 = .666$ which indicates that 66.6% of the variability in commended reading performance can be explained by knowing ethnicity. When controlling for teaching experience, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met commended performance standard was $r^2 = .564$ ($n = 66, p < 0.006$) suggested that controlling for years of teaching experience could account for 10.2% of the variability observed. These results suggest that controlling for teaching experience does have an effect on the strength of the relationship between the percentage of ED students and their performance in reading and the percentage of African American and Hispanic students and their performance in reading.

Research question 10. Is there a difference in the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of teachers leaving district?

The coefficient of determination for the zero order correlation between ED students and their met standard in math performance was $r^2 = .167$ which indicates that 16.7% of the variability in math met standard performance can be explained by knowing

socioeconomic status. When controlling for teachers leaving the district, the partial correlation between ED students and students that met standard in math was not at the significant level. The coefficient of determination for the zero order correlation between ED students and their commended math performance was $r^2 = .415$ which indicates that 41.5% of the variability in commended math performance can be explained by knowing socioeconomic status. When controlling for teachers leaving the district, the coefficient of determination for the partial correlation between ED students and students that met commended performance in math was $r^2 = .380$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 3.5% of the variability observed.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard math performance was $r^2 = .267$ which indicates that 26.7% of the variability in met standard math performance can be explained by knowing ethnicity. When controlling for teachers leaving the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met standard in math was $r^2 = .226$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 4.1% of the variability observed. The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their commended math performance was $r^2 = .518$ which indicates that 51.8% of the variability in commended math performance can be explained by knowing ethnicity. When controlling for teachers leaving the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and

students that met commended performance in math was $r^2 = .491$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 2.7% of the variability observed. In each instance, high percentages of African American and Hispanic students combined were associated with lower levels of performance in math when controlling for teacher attrition from the district.

Research question 11. Is there a difference in the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentage of teachers leaving district?

The coefficient of determination for the zero order correlation between ED students and their met standard reading performance was $r^2 = .783$ which indicates that 78.3% of the variability in met standard reading performance can be explained by knowing socioeconomic status. When controlling for teachers leaving the district, the coefficient of determination for the partial correlation between ED students and students that met standard in reading was $r^2 = .746$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 3.7% of the variability observed. The coefficient of determination for the zero order correlation between ED students and their commended reading performance was $r^2 = .671$ which indicates that 67.1% of the variability in commended reading performance can be explained by knowing socioeconomic status. When controlling for teachers leaving the district, the coefficient

of determination for the partial correlation between ED students and students that met commended performance in reading was $r^2 = .616$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 5.5% of the variability observed.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard reading performance was $r^2 = .740$ which indicates that 74.0% of the variability in met standard reading performance can be explained by knowing ethnicity. When controlling for teachers leaving the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met standard in reading was $r^2 = .694$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 4.6% of the variability observed. The coefficient of determination for the zero order correlation between African American and Hispanic student combined and their commended reading performance was $r^2 = .666$ which indicates that 66.6% of the variability in commended reading performance can be explained by knowing ethnicity. When controlling for teachers leaving the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met commended performance in reading was $r^2 = .607$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 5.9% of the variability observed. In each instance, high percentages of African American and Hispanic students combined were associated with lower levels of performance reading when controlling for teacher attrition from the district.

Research question 12. Is there a difference in the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for the percentage of teachers transferring to another school within the district?

The coefficient of determination for the zero order correlation between ED students and their commended math performance was $r^2 = .415$ which indicates that 41.5% of the variability in commended math performance can be explained by knowing socioeconomic status. When controlling for teachers transferring to another school within the district, the coefficient of determination for the partial correlation between ED students and students that met commended performance in math was $r^2 = .339$ ($n = 66, p < 0.006$) which indicates that teachers transferring within the district accounts for 7.6% of the variability observed. The coefficient of determination for the zero order correlation between ED students and their met standard math performance was $r^2 = .167$ which indicates that 16.7% of the variability in met standard math performance can be explained by knowing socioeconomic status. When controlling for teachers transferring to another school within the district, the partial correlation between ED students and students that met standard in math was $r^2 = .113$ ($n = 66, p > 0.006$) which was not at the significant level.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard math performance was

$r^2 = .267$ which indicates that 26.7% of the variability in met standard math performance can be explained by knowing ethnicity. When controlling for teachers transferring to another school within the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met standard in math was $r^2 = .210$ ($n = 66, p < 0.006$) which indicates that teachers transferring within the district accounts for 5.7% of the variability observed. The coefficient of determination for the zero order correlation between African American and Hispanic student combined and their commended math performance was $r^2 = .518$ which indicates that 51.8% of the variability in commended math performance can be explained by knowing ethnicity. When controlling for teachers transferring to another school within the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met commended performance in math was $r^2 = .449$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 6.9% of the variability observed.

Research question 13. Is there a difference in the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for the percentage of teachers transferring to another school within-district?

The coefficient of determination for the zero order correlation between ED students and their met standard reading performance was $r^2 = .783$ which indicates that

78.3% of the variability in met standard reading performance can be explained by knowing socioeconomic status. When controlling for teachers transferring to another school within the district, the partial correlation between ED students and students that met standard in reading was $r^2 = .738$ ($n = 66, p < 0.006$) which indicates that teachers transferring within the district accounts for 4.5% of the variability observed. The coefficient of determination for the zero order correlation between ED students and their commended reading performance was $r^2 = .415$ which indicates that 41.5% of the variability in commended reading performance can be explained by knowing socioeconomic status. When controlling for teachers transferring to another school within the district, the coefficient of determination for the partial correlation between ED students and students that met commended performance in reading was $r^2 = .339$ ($n = 66, p < 0.006$) which indicates that teachers transferring within the district accounts for 7.6% of the variability observed.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard reading performance was $r^2 = .740$ which indicates that 74.0% of the variability in met standard reading performance can be explained by knowing ethnicity. When controlling for teachers transferring to another school within the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met standard in reading was $r^2 = .681$ ($n = 66, p < 0.006$) which indicates that teachers transferring within the district accounts for 5.9% of the variability observed. The coefficient of determination for the zero order correlation between

African American and Hispanic student combined and their commended reading performance was $r^2 = .666$ which indicates that 66.6% of the variability in commended reading performance can be explained by knowing ethnicity. When controlling for teachers transferring to another school within the district, the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met commended performance in reading was $r^2 = .601$ ($n = 66, p < 0.006$) which indicates that teachers leaving the district accounts for 6.5% of the variability observed.

Research question 14. Is there a difference in the percentage of students that met standard and met commended performance in math between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for the percentage of total teacher mobility?

The coefficient of determination for the zero order correlation between ED students and their commended math performance was $r^2 = .415$ which indicates that 41.5% of the variability in commended math performance can be explained by knowing socioeconomic status. When controlling for total teacher mobility (leavers + movers), the coefficient of determination for the partial correlation between ED students and students that met commended performance in math was $r^2 = .286$ ($n = 66, p < 0.006$) which indicates that total teacher mobility accounts for 12.9% of the variability observed. The coefficient of determination for the zero order correlation between ED students and their met standard math performance was $r^2 = .167$ which indicates that

16.7% of the variability in met standard math performance can be explained by knowing socioeconomic status. When controlling for the total teacher mobility (leavers + movers), the partial correlation between ED students and students that met standard in math was $r^2 = .073$ ($n = 66, p > 0.006$) which is not at the significant level.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard math performance was $r^2 = .267$ which indicates that 26.7% of the variability in met standard math performance can be explained by knowing ethnicity. When controlling for total teacher mobility (leavers + movers), the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met standard in math was $r^2 = .166$ ($n = 66, p < 0.006$) which indicates that total teacher mobility accounts for 10.1% of the variability observed. The coefficient of determination for the zero order correlation between African American and Hispanic student combined and their commended math performance was $r^2 = .518$ which indicates that 51.8% of the variability in commended math performance can be explained by knowing ethnicity. When controlling for total teacher mobility (leavers + movers), the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met commended performance in math was $r^2 = .404$ ($n = 66, p < 0.006$) which indicates that total teacher mobility accounts for 11.4% of the variability observed.

Research question 15. Is there a difference in the percentage of students that met standard and met commended performance in reading between schools serving higher percentages of ED students and African American and Hispanic students combined and schools serving smaller percentages of ED students and African American and Hispanic students combined when controlling for percentages of total teacher mobility?

The coefficient of determination for the zero order correlation between ED students and their met standard reading performance was $r^2 = .740$ which indicates that 74.0% of the variability in met standard reading performance can be explained by knowing socioeconomic status. When controlling for the total teacher mobility (leavers + movers), the partial correlation between ED students and students that met standard in reading was $r^2 = .686$ ($n = 66, p < 0.006$) which indicates that total teacher mobility accounts for 9.7% of the variability observed. The coefficient of determination for the zero order correlation between ED students and their commended reading performance was $r^2 = .671$ which indicates that 67.1% of the variability in commended reading performance can be explained by knowing socioeconomic status. When controlling for total teacher mobility (leavers + movers), the coefficient of determination for the partial correlation between ED students and students that met commended performance in reading was $r^2 = .539$ ($n = 66, p < 0.006$) which indicates that total teacher mobility accounts for 13.2% of the variability observed.

The coefficient of determination for the zero order correlation between African American and Hispanic students combined and their met standard reading performance

was $r^2 = .740$ which indicates that 74.0% of the variability in met standard reading performance can be explained by knowing ethnicity. When controlling for total teacher mobility (leavers + movers), the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met standard in reading was $r^2 = .615$ ($n = 66, p < 0.006$) which indicates that total teacher mobility accounts for 12.5% of the variability observed. The coefficient of determination for the zero order correlation between African American and Hispanic student combined and their commended reading performance was $r^2 = .666$ which indicates that 66.6% of the variability in commended reading performance can be explained by knowing ethnicity. When controlling for total teacher mobility (leavers + movers), the coefficient of determination for the partial correlation between African American and Hispanic students combined and students that met commended performance in reading was $r^2 = .523$ ($n = 66, p < 0.006$) which indicates that total teacher mobility accounts for 14.3% of the variability observed. High percentages of African American and Hispanic students combined were associated with lower levels of performance reading when controlling for total teacher mobility.

In summary, the results of the three-phased analyses several strong and significant relationships. When comparing the highest and lowest quartile of schools based on the average years of teaching experience, there was a significant difference seen in the percentage of ED students and the percentage of African American and Hispanic students combined. Similarly, there was a strong and significant relationship found in teacher mobility variables, including percentage of leavers, percentage of

within-district transfers, and total teacher mobility in the percentage of ED student and the percentage of African American and Hispanic students combined. When exploring the relationship between student demographic variables and student performance variables in the second phase of the study, a large and significant difference was found between student performance variables and schools that served higher percentages of ED students and students of color and those that served lower percentages of ED students and students of color. This validates that a significant achievement gap existed between ED students and students of color in GRISD.

Finally, results from the partial correlations between the percentage of ED students and African American and Hispanic students combined and their performance in reading and math showed that controlling for teaching experience did have an effect on performance in reading and math; however, it had less of an effect in math. When controlling for percentages of teachers leaving the school district, teachers transferring to another school within the district, and total teacher mobility, results varied. Teachers transferring to other schools within the district had a small to moderate effect on the strength of the relationship between ED students and African American and Hispanic students combined and their commended performance on math and reading and meeting standard on reading. Attrition from the district had a slight effect on the strength of the relationship between ED and African American and Hispanic students combined and their performance on math and reading, although it was less in math. Additionally, controlling for within-district teacher transfers had a small to medium effect on the strength of the relationship between African American and Hispanic students combined

and commended performance or meeting standard in math and reading. There was not a significant partial correlation between the percentage of ED students and meeting standard on math. The final set of partial correlations indicated the effect of total teacher mobility on student performance for ED students and African American and Hispanic students combined. When controlling for the percentages of total teacher mobility (leavers + movers) from campuses, there was a strong negative, partial correlation between the percentage of ED students and performance in math (commended only) and reading. Total teacher mobility had a moderate to high effect on the relationship between these two variables. The partial correlation between the percentage of ED students and met standard in math was not at a significant level. Finally, there was a strong negative, partial correlation between the percentage of African American and Hispanic students combined and students that met standard in reading, met commended performance in reading, and met commended performance in math. High percentages of African American and Hispanic students combined were associated with lower levels of performance in math and reading when controlling for total teacher mobility. An inspection of the zero-order correlations in reading met standard and reading commended suggested that controlling for total teacher mobility did have an effect on the strength of the relationship between the percentage of African American and Hispanic students combined and their performance in reading. Controlling for total teacher mobility also had a moderate to high effect on the strength of the relationship between African American and Hispanic students combined and their performance in math.

CHAPTER V

CONCLUSION

Overview of the Study

The purpose of this study was to examine the relationship between teacher quality variables, student demographic variables, and student performance in order to determine the influence teacher quality variables had on student performance in one large school district. Data sets from the 2007-2008 school year were used to compare teacher quality variables: 1) the percentage of teachers with master and doctoral degrees and 2) the average years of teaching experience. They were also used to compare teacher mobility with student demographic variables: 1) the percentage of economically disadvantaged students and 2) the percentage of African American and Hispanic students combined. Student demographic variables were also compared with student performance variables: 1) the percentage that met standard in math, 2) the percentage that met commended performance in math, 3) the percentage that met standard in reading, and 4) the percentage that met commended performance in reading. Using statistical procedures, comparisons were made between schools with the highest quartile of ED students and African American and Hispanic students and schools with the lowest quartile of ED students and African American and Hispanic students. A summary of the conclusions and recommendations for further research and practice follows.

Discussion of Findings

When exploring the relationships between “teacher quality” variables and “student demographic” variables, several strong and significant associations were found. When comparing the highest and lowest quartile of schools based on average years of teaching experience, there was a significant difference observed in the percentage of ED students and the percentage of African American and Hispanic students combined. When comparing the difference between the lowest and highest quartiles of teaching experience by the percentages of ED students and the percentage of African American and Hispanic students combined, there was also a significant difference. This is consistent with literature indicating that novice teachers are more likely to be assigned to high-poverty schools compared to low-poverty schools (Peske & Haycock, 2006, Mayer, Mullins, & Moore, as cited in Learning First Alliance, 2005).

Similarly, there were strong and significant associations found between the percentage of within-district transfers and total teacher mobility and the student demographic variables, including the percentage of ED students and the percentage of African American and Hispanic students combined. There was not a significant difference found between the attrition from the district and the percentage of ED students and the percentage of African American and Hispanic students combined. This may be due, in part, to the “revolving door syndrome” taking place in the district; new hires gain access to employment in the district, accept a job at a school serving high populations of ED students and students of color, and then leave the campus in the following year to transfer to another school within the district serving lower percentages

of ED students and students of color (Ingersoll, 2004). The significant difference found in the percentage of within-district transfers and the total teacher mobility between schools serving higher populations of ED students and African American and Hispanic students is consistent with findings which support that high-poverty schools have much higher attrition rates than low poverty schools (Alliance for Excellent Education, 2005; Ingersoll, 2004). Refer to Table 22 for details of the findings.

One finding worth expanding upon is the relationship between teacher mobility and those who either left the district or transferred within the district. There is a stronger positive relationship between teachers transferring within the district ($r = .825$) than teachers leaving the district altogether ($r = .565$) when compared with the total mobility variable. This supports the argument that the issue of attrition within this school district from higher poverty schools to lower poverty schools can be addressed more comprehensively by examining the within-district policies and practices that contribute to the staffing gap and teacher attrition in schools that serve higher percentages of students of color and students from economically disadvantaged backgrounds compared to schools that serve higher percentages of White and affluent students.

Findings from this study demonstrated that there was not a significant relationship between the percentage of teachers with advanced degrees and the percentage of ED students and the percentage of African American and Hispanic students combined. Although there are mixed findings in literature regarding advanced teaching degrees, this finding is consistent with other studies that have demonstrated that advanced degrees do not contribute to student achievement (Carr, 2006, as cited in

NCCTQ, 2007). Although more research is needed in this area to examine the specific advanced degrees earned from this district's teachers, one might question whether the current compensation ladder which rewards teachers with advanced degrees are dollars well-spent in promoting student achievement.

Collectively, the findings support the argument that a teacher quality gap does exist in this particular district between schools serving higher percentages of ED students and African American and Hispanic students compared to schools serving students from more affluent backgrounds and White students. These findings are consistent with research that inner-city, high-poverty schools serving higher percentages of African American and Hispanic students tend to have teachers with lower qualifications and less experience than low-poverty schools (Betts, Rueben, & Danenberg, 2000; Clotfelter et al., 2006; Hanushek, Kain, & Rivkin, 2004; Jackson, 2009; Lankford, Loeb, & Wycoff, 2002). Additionally, many of these researchers also found that low-income, urban schools experience high teacher turnover. When examining the movement of teachers across schools, research has demonstrated that teachers, particularly those with more experience, teaching in schools that are low-performing and tend to have higher populations of low-income students and students of color tend to move to higher-achieving affluent schools (Bohrnstedt & Stecher, 2002; Lankford, 1999; Betts et al., 2000; Lankford et al., 2002; Hanushek, Kain & Rivkin, 2004, as cited in Jackson, 2009, p. 215). These findings are consistent with the within-district cycle of events that is seen and characterized as the "revolving door" syndrome described in previous sections.

Table 22

Summary of Top and Bottom Quartile Comparisons Based on Teacher Quality Variables

Top and Bottom Quartiles Comparisons Based on Teacher Quality Variables	Student Demographic Variables	Correlation Strength of Association and Directionality	Magnitude of Differences in Means
% Teachers with Master or Doctoral Degrees	% Economically Disadvantaged (ED) Students	Weak Positive	Small
	% Students of Color (AA + H)	Weak Positive	Moderate to Large
Average Years of Teaching Experience	% Economically Disadvantaged (ED) Students	*Strong Negative	**Very Large
	% Students of Color (AA + H)	*Strong Negative	**Very Large
% Teachers Leaving District (Leavers)	% Economically Disadvantaged (ED) Students	*Moderate Positive	Moderate
	% Students of Color (AA + H)	*Moderate Positive	Large
% Teachers Within-District Transfers (Movers)	% Economically Disadvantaged (ED) Students	*Moderate Positive	**Very Large
	% Students of Color (AA + H)	*Moderate Positive	**Very Large
% Total Teacher Mobility (Leavers + Movers)	% Economically Disadvantaged (ED) Students	*Strong Positive	**Very Large
	% Students of Color (AA + H)	*Strong Positive	**Very Large

* Significant correlations

** Significant differences in the means

During the second phase of analysis, correlations between student demographic variables and student academic performance were examined, and the bottom and top quartiles on each of the student demographic variables were compared with their performance in math and reading. Strong, negative correlations were found between each of the student demographic variables and each of the student performance variables for math and reading (see Table 23). Further analysis showed a significant difference between the top and bottom quartiles of the percentage of ED students and the percentage of African American and Hispanic students combined and their performance in math and reading. The results combined suggest that schools serving higher populations of ED students and African American and Hispanic students combined are less likely to have students meeting standards in math and reading on TAKS and are less likely to have students reaching commended performance in math and reading on the TAKS test compared to their more affluent and White counterparts. In each instance of comparing commended performance scores, the difference in means was very large. The significant achievement gap illustrated in the findings is consistent with other findings which have shown that achievement gaps begin to appear in early elementary school and persist throughout middle and high school (The College Board, 2009, as cited in Haun, 2011, p. 38). The even a larger difference in the means found when comparing commended performance may be due to within-district tracking practices which may disproportionately assign White students in advanced courses while marginalizing African American and Hispanic students from more rigorous curriculum (Wiley, 2009, as cited in Haun, 2011).

Table 23

Summary of Top and Bottom Quartile Comparisons Based on Student Demographic Variables

Top and Bottom Quartiles Comparisons Based Student Demographic Variables	Student Performance Variables	Correlation Strength of Association and Directionality	Magnitude of Differences in Means
% ED Students	% Met Standard on Math TAKS	*Moderate Negative	**Very Large
	% Met Commended Performance on Math TAKS	*Strong Negative	**Very Large
	% Met Standard on Reading TAKS	*Strong Negative	**Very Large
	% Met Commended Performance on Reading TAKS	*Strong Negative	**Very Large
% Students of Color (AA + H)	% Met Standard on Math TAKS	*Strong Negative	**Very Large
	% Met Commended Performance on Math TAKS	*Strong Negative	**Very Large
	% Met Standard on Reading TAKS	*Strong Negative	**Very Large
	% Met Commended Performance on Reading TAKS	*Strong Negative	**Very Large

* Significant correlations

** Significant differences in the means

Findings from the final phase of this study suggested that teaching experience is associated with student performance in reading and math; however, it had less of an association in math. This is consistent with findings that teaching experience significantly raises test scores, particularly in reading subject areas (Rockoff, 2004). Controlling for within-district teacher transfers had a small to medium association on the strength of the relationship between African American and Hispanic students combined and commended performance or meeting standard in math and reading. When controlling for percentages of total teacher mobility (leavers + movers) from campuses, there was a strong negative, partial correlation between the percentage of ED students and performance in math (commended only) and reading (see Table 24).

This finding supports what other studies have found which have shown the link between student performance and teacher turnover (Boyd, et al., 2008). In particular, one study of hundreds of thousands of teachers and more than 50,000 students in Texas found:

“The teacher transition rate is also significantly related to a number of characteristics including average achievement, percent black and percent Hispanic. Higher average student achievement significantly reduces the probability of moving or exiting Texas public schools at all levels of experience. Nonblack and non-Hispanic teachers are more likely to transition the higher are the Black and Hispanic enrollment shares. Exactly the opposite is true for Black and Hispanic teachers, who tend to be less likely to transition the higher the

enrollment share of their race/ethnic group” (Hanushek, Kain, & Rivkin, 2004, p. 343).

The implications of the research conducted by Hanushek, et al. suggested that lower achievement leads to increased turnover; however, Barnes, Crowe, and Schaefer (2007) raised an important question related to this research, “What about the impact of teacher turnover on student achievement?”(p. 8). According to research cited in the report presented by the National Commission on Teaching and America’s Future (n.d.):

Studies of “teacher effects” demonstrate a strong relationship between teaching and student achievement gains (Sanders and Rivers, 1996; Wright, Horn and Sanders, 1997; Mendro, Jordan, Gomez, Anderson, and Bembry, 1998; Rivkin, Hanushek and Kain, 2005). These studies also argue that teacher effectiveness improves with experience during the early years of a teacher’s career (McCaffrey, Koretz, Lockwood, and Hamilton, 2003; Rivkin et al., 2005; Skolnik et al., 2002). Based on this research, it stands to reason that student achievement will suffer when students are continually faced with a parade of inexperienced teachers. In a vicious cycle, teacher turnover lowers student achievement, and lower student achievement leads to teacher turnover. (p. 8)

This all suggests that if the “revolving door syndrome”(Ingersoll, 2004) is to be interrupted in this particular district, the district must channel their efforts into building teachers’ capacity while at the same time working to eliminate root causes for teacher attrition.

Table 24
Summary of Explained Variability between Student Demographic Variables and Student Performance Variables When Controlling for Teacher Quality Variables

Top and Bottom Quartiles Comparisons Based Student Demographic Variables	Student Performance Variables	% Explained Variability When Controlling for Teacher Quality Variables			
		Teaching Experience	Teacher Attrition from District (Leavers)	Within-district Teacher Transfers (Movers)	Total Teacher Mobility (Leavers + Movers)
	% Met Standard on Math TAKS	3	4	5	9
% ED Students	% Met Commended Performance on Math TAKS	6	4	8	13
	% Met Standard on Reading TAKS	11	4	5	10
	% Met Commended Performance on Reading TAKS	10	6	6	13

Table 24 (continued)

Top and Bottom Quartiles Comparisons Based Student Demographic Variables	Student Performance Variables	% Explained Variability When Controlling for Teacher Quality Variables			
		Teaching Experience	Teacher Attrition from District (Leavers)	Within-district Teacher Transfers (Movers)	Total Teacher Mobility (Leavers + Movers)
% Students of Color (AA + H)	% Met Standard on Math TAKS	1	4	6	10
	% Met Commended Performance on Math TAKS	2	3	7	11
	% Met Standard on Reading TAKS	13	5	6	13
	% Met Commended Performance on Reading TAKS	10	6	7	14

The findings of this study have many implications for students from low-income families and African American and Hispanic students. Although this large, fast-growing district has a history and reputation of achieving high levels of student performance, the findings from this study suggest there is an inequitable distribution of teacher quality and the delivery of education to students from low-income families and African American and Hispanic students. Moreover, findings from this study show this inequitable distribution has an effect on the performance of ED students and African American and Hispanic students. Although this study did not specifically explore the within-district policies or lack of policies that contribute to the delivery of an inequitable education to students from low-income families and African American and Hispanic students, it is important to begin the conversation and exploration of why this is occurring. More importantly, the district must be aggressive in taking the necessary steps to address the inequities if it is committed to truly ensuring that all students receive their fair share of quality teachers and a quality education.

Implications

There are several implications that can be drawn from the findings in this study. While research supports that teachers do make a difference in student learning, studies show that teaching quality has an even greater effect on the achievement of our most disadvantaged students (Rivkin, Hanushek, & Kain, 2002; Haycock, as cited in Voke, 2003). One of the major implications drawn from these findings is if the district strives to close the achievement gap, it must first work to close the staffing gap. Moreover, the staffing gap where least experienced teachers are teaching in schools and serving the

highest percentages of students from low-income families and African American and Hispanic students cannot be addressed without the campus and district leaders doing more to reduce the attrition of high quality, more experienced teachers from these schools. It is not about simply staffing the highest needs schools with teachers, but staffing them with highly effective teachers that will remain in these schools. Without such well-qualified teachers for its schools with the most underserved students, the district will fail to close the perpetual achievement gap that persists. Additionally, attention must be given to who is teaching whom not only across the district, but within each of the schools. Principals within the district can work to ensure that courses and classes serving high percentages of ED students and African American and Hispanic students within their school are taught by their best teachers.

Another implication that can be drawn from this study is related to the importance of comprehensive induction programs for beginning teachers in schools serving higher percentages of ED students and African American and Hispanic students. As the district strives to close the achievement gap, it must ensure that new teachers hired in schools serving high percentages ED students and students of color receive specialized and intensive support that ensures their success in these diverse contexts and increases the likelihood they will remain in these contexts.

Finally, this district could make greater strides in closing the achievement gap by examining the policies and practices that contribute to the staffing gap that exists across the district and within the schools that serve higher populations of ED students and students of color. Counterproductive policies and practices affecting the retention of its

best teachers in these schools must be examined, and effective strategies to reduce attrition in these schools must be employed. This requires a comprehensive approach which examines leadership, professional development, incentives, working conditions, and funding. To assist this district in the examination of policies and practices that contribute to the staffing gap and to better equip other district leaders with promising strategies to address the staffing gap, the following section provides recommendations that can serve as a framework for action.

Recommendations for Addressing the Staffing Gap

Drawing on the findings and implications of this study, district leaders within this particular context can work to address the staffing gap, and learning gap, through a comprehensive approach that works to address the district-wide policies and practices that create barriers to closing the staffing gap. Additionally, a practical approach that works to address all aspects of the system is needed. Far too often, districts take a myopic approach to retaining teachers in high-poverty schools without looking at the system as a whole. Turning to the *Framework for Action* outlined by Learning First Alliance (2005), the following recommendations draw on the implications of this study and provide promising strategies that can be used to guide school leaders, district leaders, and policymakers as they attack the staffing gap problem within this fast-growing and changing school district.

Improve school leadership. Strong and supportive school leadership is essential to the success of high-poverty, low-performing schools. School and district leaders within this school district must focus on recruiting and keeping their best leaders

for challenged schools while removing their ineffective leaders (Learning First Alliance, 2005). Bush and Jackson (2002) describe “outstanding” leadership, “strong” educational leadership, “firm” leadership, and “professional” leadership (p. 417) as major factors contributing to school effectiveness. To ensure effective leadership, central office leaders and staff must provide ongoing support to its school leaders through “training, mentoring, and coaching—from ‘master’ principals and collegial learning networks for district principals in challenged schools” (Learning First Alliance, 2005, p. 16). Moreover, recent trends toward “dispersed” or “distributed” leadership have redefined the role of principals and emphasized the need to develop school leaders’ capacity, including teacher leaders, to be facilitators of improvement. Recognizing that all formal and informal leaders in its highest needs schools need additional preparation and support to effectively lead change and manage the challenges, attention must be given to high quality professional development and school reform that supports such initiatives.

Improve working conditions. Improving the working conditions of high-poverty, low-performing schools is essential for ensuring recruitment and retention of high quality staff. As noted earlier in the literature review, many teachers in our most challenged schools face working conditions that threaten morale and effectiveness.

The lack of resources, poor building conditions, lower pay, and constant dealing with the effects of poverty, broken homes, violence, substance abuse, and teen pregnancy all take their toll. Additionally, for urban teachers who strive to make an impact, large bureaucracies are often stifling. (Claycomb, 2000, p. 20)

While no one would deny the increasing financial stress that districts are facing, this district must strive to examine the full implications of increased class sizes as a means to cut costs. Increased class sizes often translate to extra workloads that serve as disincentives to remain in hard-to-staff schools. To change the landscape that the most challenged schools within this district face, the district must reconsider how to reduce class size and teacher workloads so that teachers can provide the intensive instruction needed by their students (Learning First Alliance, 2005). In addition, the district must rethink the way that they allocate staffing positions to ensure that they are based on the needs of students rather than standardized staffing formulas. Partnerships with schools and community leaders, especially within communities of color, must be created and sustained to build trust and strengthen the community's commitment toward supportive learning environments that create a culture of "safety, civility, and positive behavior among students and adults" (Learning First Alliance, 2005, p. 17). To establish and maintain such partnerships, "school principals and teachers [must be] given the training, time and support for effective communication with students' families" (Learning First Alliance, 2005, p. 17). Finally, physical working conditions must be addressed by fixing physical plant problems that are often seen many of the older buildings that often serve higher percentages of students of color and ED students.

Provide more and better professional support. Policymakers, teacher associations, district leaders, school leaders, and teachers within this district must recognize that the task of improving learning is more difficult in high-poverty, low-performing schools and must pull together to address this challenge by providing additional resources for professional support. As Claycomb (2000) describes,

Novice teachers in urban schools often face a difficult transition from preparation programs to classrooms because they are expected to hone their professional skills while working under circumstances that are similar to, if not more challenging than, those of their experienced colleagues. (p. 19)

As seen in this study, schools serving higher percentages of ED students tend to have less experienced teachers. Therefore, the district must ensure that the induction programs provided across the district and within each campus are comprehensively established and maintained to foster the continuing development of new teachers as they enter the district. Additionally, the district must continue to build expertise in the teaching profession throughout a teacher's career. By providing orientation, high-quality mentoring and coaching, support groups, aligned professional development opportunities, reasonable teaching loads, formative assessments, and strong staff and administrative support, new teachers are more likely to stay in the profession (Smith & Ingersoll, 2004).

Similarly, new principals in the most challenging schools require far better mentoring, professional development and access to support staff. In order to meet the growing demand for highly trained and prepared staff for high-need schools, the district

must collaborate with local universities to provide quality professional development and support for teachers, support staff, and leaders in high-poverty, under-performing schools.

Create incentives to work in challenging schools. In order to offset the disincentives to working in our most challenging schools, the district and its policymakers must create a broad range of financial incentives to work in hard-to-staff schools such as signing bonuses, extra years of service credited toward retirement, low-interest home mortgages, additional compensation, additional retirement benefits, flexible scheduling, and other special incentives to attract and keep effective leaders and teachers in high-poverty, low-performing schools (Claycomb, 2000; Learning First Alliance, 2005).

District leaders must also actively encourage experienced and successful teachers and principals to choose assignments in high-poverty, low performing schools. Insights from National Board Certified Teachers (NBCT) during a recent summit suggest several incentives for encouraging experienced and highly qualified teachers to move to challenging schools including: (1) offering preparation and incentives for cohorts of NBCTs to move to high-needs schools as a team; (2) awarding NBCTs who teach in (or move to) high-needs schools an annual budget for the purchase of student resources that can enhance their instructional programs; and (3) provide additional staff and funding for every NBCT hired or “grown” in that school so that administrators and teachers can create new professional development opportunities and spur increases in the number of accomplished teachers (Berry, 2004). Although these programs have yet to be

evaluated, they do offer teacher perspectives as to promising incentives that might attract and retain the district's most effective staff members in its most challenging schools.

Improve preparation for work in challenging schools. Teachers and leaders entering high-poverty, under-performing schools often come ill-prepared for real-life work in challenging schools and classrooms. The disconnect between teacher and leadership preparation programs, in addition to the day-to-day grind of the job, is often realized when teachers and leaders begin to navigate through the daily routines of the most challenging schools. In light of this reality, the school district, along with its partners in higher education must do more in designing and implementing preparation and induction programs aimed at helping teachers in diverse contexts and high-need schools (Learning First Alliance, 2005). Preparation programs must concentrate efforts to shape the content of their programs in order to better prepare teachers for urban contexts and to increase teacher candidates' willingness to work in schools that serve higher percentages of ED students and African American and Hispanic students as well as improve their success (Claycomb, 2000). Claycomb (2000) offers a "straightforward procedure" for solving the mismatch between program content and the needs of schools.

Policymakers who set program accreditation requirements hold the key to the content and structure statewide of teacher preparation programs and have clear authority to direct schools of education to prepare teachers who are capable of succeeding in urban schools. Requiring preparation programs to include information and experiences in their curriculum that have been shown to develop effective urban teachers is an important way to build a cadre of teachers with the

knowledge, skills, and desire needed to teach in urban schools. (Claycomb, 2000, p. 19)

While more is needed in the way of adequate preparation for urban teachers, several states across the country have made great strides in addressing the support gap for principals by providing exemplary leader preparation programs. In a recent report commissioned by The Wallace Foundation (2007), the findings based on exemplary leadership programs in Mississippi, Connecticut, New York, Kentucky, and California indicate that principal leadership programs need to be more selective in identifying promising leadership candidates as opposed to more open enrollment. The findings also indicate that there should be “more emphasis on instructional leadership, [doing] a better job of integrating theory and practice, provide better preparation in working effectively with the school community...and offer internships with hands-on leadership opportunities” (Darling-Hammond, LaPointe, Meyerson, & Orr, 2007, p. 1). Although several leadership programs are currently in place to develop leaders within this district, most of the programs tend to have hegemonic curriculum and do not focus on culturally responsive leadership that develops leaders as system-thinkers able to critique organizational structures, policies and practices that marginalize or disenfranchise certain groups of students. District leaders must work more closely with higher education institutions in the design and delivery of preservice development curriculum. Encouraging leaders within the district that have had success with transforming classrooms and closing the achievement gap to teach courses to students within the diverse contexts that they will be teaching or leading allow them an opportunity to fully

understanding the complexity of teaching and leading in diverse contexts and to practice their craft with intensive feedback.

Streamline hiring placement policies. With the changing landscape of the district and extremely fast-growing student population, it is critical that the district continue to look for ways to improve the recruitment and hiring of qualified individuals that can bring about the students gains that will close the achievement gap. It is only through purposeful recruitment efforts the district will ensure that its most disadvantaged schools are staffed with qualified and effective teachers.

As noted earlier, counterproductive hiring and placement practices such as “cumbersome application processes, poor customer service, insufficient data systems for tracking vacancies and candidates, high student-mobility rates that create difficulties in forecasting vacancies, late notification deadlines for departing teachers, and late budgeting” (Cortese & van Zastrow, 2006, p.1) all contribute to the staffing inequities associated with the highest-need schools. To address these challenges, district leaders within this district must ensure the district is constantly examining its hiring and placement practices to achieve more efficient hiring goals and processes with accountability measures for tracking and filling vacancies. Some urban districts have begun to streamline hiring processes by utilizing technology for online applications and applicant databases (Claycomb, 2000). These efforts allow administrators to track the application process for every prospective teacher, interview teachers via teleconference, and reduce the time between application and job offers. This district has taken great strides over the last several years in utilizing technology for online applications,

maintaining applicant databases and tracking the application process. Yet, there are still within-district hiring and placement practices which leave schools with the highest teacher turnover scrambling to fill their vacancies. As the within-district transfer season begins, and vacancies occur due to retirement and resignations, the movement of teachers transferring is typically a flow from schools serving higher percentages of students of color and ED students to schools serving lower percentages of students of color and ED students. As this process begins, more affluent schools have the same access to the same candidates at the same time as schools serving students from lower-income homes; yet, they often have fewer positions to fill. In some instances, the lack of interest from current district teachers to move to schools serving higher percentages of students of color and ED students, may leave these schools waiting for the within-district transfer period to close so they can explore candidates from outside the district. After the within-district transfer season closes, schools within the district may consider applicants outside the district. However, schools serving higher percentages of ED students and students of color have a much more daunting task at hand when competing with other campuses in attracting and hiring the most talented teachers from outside the district. The district could help to even the playing field by allowing principals in schools serving high percentages of ED students early access to the pool of out-of-district candidates for interviews and hiring before opening up access to all. This would allow principals from schools needing the most qualified teachers the opportunity to screen, interview, and offer positions to fill the larger number of vacancies; and thus,

may help to eliminate some of the barriers and challenges that principals face in schools serving the highest percentages of ED students.

In addition, some districts have worked with their teacher unions to renegotiate contracts in order to change policies which allow teachers to delay transfer and resignation notification until late into the summer months (Claycomb, 2000). By creating a system in which teachers provide earlier notice of their intent to transfer or resign, this school district may help to minimize hiring teachers late in the summer months. Finally, the school district can realign its budget processes (Claycomb, 2000) and implement “fast-track” hiring for filling positions in high-poverty, under-performing schools so that school leaders receive their staffing budget before the end of the year and have a jump-start on early recruiting and hiring of prospective teachers (Learning First Alliance, 2005).

Create a coherent set of policies to close the staffing gap. In order to address the staffing gap in hard-to-staff schools, there must be a coherent set of federal, state, and local district policies which consciously align all of our education policies with the staffing challenge (Cortese & von Zastrow, 2006). Under the existing NCLB Act, federal, state, and district systems of rewards and sanctions for low-performing schools hold people accountable for improved achievement in ways that deter teachers and principals from going into these schools. Policymakers must begin to design accountability systems that consider “value-added” models for accountability reform and eliminate counterincentive accountability systems that sanction schools when they do not meet AYP (Heck, 2006).

In addition to extraneous factors, the district must target funding aligned with efforts to reduce the barriers associated with challenging schools. Class size reduction, professional development, and rewards for accomplished teachers (such as National Board Certified teachers) are ways this district can work to provide incentives for teachers to teach and remain in high-poverty, low-performing schools (Learning First Alliance, 2005). Continuing policies that reward teachers based on credentials (e.g., advanced degrees and certifications) may be less effective than policies that reward teachers based on performance. In this specific district, teachers are rewarded through compensation for completing a master degree. While no one would argue the value of continued education, whether these degrees translate to improved teacher performance and increased student performance is questionable in this district. Results from this study do show there is no a significant relationship between advanced degrees and the students served. More research is needed to examine the specific advanced degrees earned and differences that may exist in the types of degrees (i.e. content-specific or administrative) and student performance to truly determined if this use of funds is contributing to the overall organizational goals of this district. Additionally, the district must continue to look at providing differentiated support in the way of professional development, coaching, and other services based on student performance while eliminating bureaucratic overhead practices that are unnecessary and have little to do with teaching and learning. More is needed in the way of differentiated professional development in the area of culturally responsive teaching if the district can bring about the real change in practice needed to transform it schools to meet all students where they

are and move them to the highest levels of achievement. This also requires equal access to a more rigorous curriculum. The district must continue to move toward detracking policies and practices which systematically expose some groups of students to higher levels of rigor instruction. To truly examine the within-district inequities that may exist with access to advanced courses and dual credit courses, the district could initiate an equity audit. This would allow the district to look at curriculum, hiring practices, instructional practices, and budgeting practices and policies through the lens of equity.

If equity is a priority, the district must also continue to examine its pyramid of services to ensure that underperforming groups are a top priority and that underperforming student groups in every school are not left behind. Finally, the district would be better situated to target some of the services provided by putting into practice tracking systems that allow within-school staffing gaps to be examined. While this study examined the between-school differences in teacher quality distribution, it did not examine the within-school inequitable distribution to truly examine who is teaching whom. Additional research is needed to unmask the teacher quality inequities that exist within each campus.

Provide greater funding targeted to student needs. The national funding gap of \$1,348 per student is a function of differences among districts *within* states and differences among districts *between* states (Carey, 2004). Important changes have already been implemented to target funding of Title I dollars to high-poverty districts within states; however, the current federal funding formula continues to provide more money to wealthier states than poor states. Hence, while the funding gap *within* the

states may be closing, the funding gap *between* states continues to penalize states who are most in need (Carey, 2004). If the funding gap is to be eliminated, Congress must start by adjusting the formula used to distribute funding under Title I.

While it is necessary for Congress and other federal policymakers to understand the shared responsibility they have in the funding gap, states should also take the necessary steps to close funding gaps that perpetuate the inequities in our high-poverty, under-performing schools. Reducing reliance of local property taxes to fund education is one step that states can do to increase support for high-need schools. The wide variance between property-rich districts that can raise large amounts of revenue with low tax rates and property-poor districts with insufficient funding and high property tax rates creates funding gaps that cannot be eliminated at the local level (Carey, 2004). Therefore, states can ensure an equitable education to all children by cutting local taxes and distributing new state revenues in a way that balances local differences in property wealth. In addition, states should also do more to target extra funding to high-poverty school districts and adopt poverty-based funding strategies that will align funding and accountability systems toward the goal of closing the achievement gap.

Finally, there are steps that this specific district can take locally to reduce the funding gaps between schools within it. The district must be responsive to how much revenue one school gets compared to another within it and make the necessary changes to ensure that unfair budgeting practices are eliminated. An aggressive measure could be to truly allocate the same amount of money per student and adjust for student needs. Such a “student-weighted based budgeting” model has shown promising results for

increasing equity among schools (Hawley & Roza, 2006, p. 39). This examination should take into account the way in which money is allocated for staffing. When considering the current practice of the district, schools are allocated teaching positions based on a district-wide teacher-student ratio. Teaching units are allocated for each campus; yet, there is quite difference seen in the variation of the average dollars per teaching position spent at schools serving higher percentages of students of color and ED students compared to schools serving students from more affluent homes.

As this district of educators and policymakers tackle the issue of funding inequities in its schools, it is critical to acknowledge that it is a district, state, and federal shared responsibility for spending and accountability. Giving additional money to high-poverty districts does not ensure that districts will effectively distribute the money to our highest-need students. Moreover, more money does not translate into the support services that are needed for our teachers and students to be successful. More work must be done to examine a reform agenda that targets equitable funding and support for our most challenging schools.

Recommendations for Future Research

The purpose of this study was to investigate whether GRISD had a staffing gap problem with lower quality, less experienced teachers being staffed at schools serving higher percentages of students from low-income families and students of color compared to schools serving higher populations of affluent, White students. Additionally, this study examined the effect these variables had on student performance in schools serving higher percentages of students from low-income homes and students of color,

specifically African American and Hispanic students. While the focus of this study was to determine if a staffing gap existed and if teacher experience, advanced degrees, and teacher mobility impacted student performance, it did not explore why teachers leave schools serving higher percentages of ED students and students of color. Much research has been done in the way of factors contributing to teacher attrition in schools that serve higher percentages of ED students and students of color. Qualitative research exploring the contributing factors that influence teachers' decisions to leave these schools, factors that influence teachers to stay, and incentives that would encourage teachers to work in schools serving higher percentages of ED students and students of color is a recommendation for future research that might help guide this specific district toward effective strategies to eliminate the staffing gap.

Additionally, this researcher chose to focus narrowly on only a few teacher quality variables without exploring the relationship of other teacher quality variables, such teacher characteristics, teacher expertise, teacher performance, or teacher character. Further research is needed to explore teacher quality inputs and processes in order to make better connections to their impact on student performance. Critical to this recommendation is the priority of the district to attract, develop, and retain a quality workforce that is reflective of, and responsive to, its student population. If this is truly an organizational goal, then research to explore how well the district is working toward meeting this goal is a great platform to begin the discussion. In line with this research is the need to also examine the hiring process including the recruitment efforts, application

screening process, and interview process that provides access to the applicant pool from which principals are able to choose their potential new hires.

Finally, this study does not provide the ethnicity breakdown of students coded as economically disadvantaged according to the state coding system. This was a limitation of the study. A recommendation for future research is to replicate this study with the current student and teacher population. This would provide longitudinal differences over a span of years that could provide very beneficial to this district including whether gains are being made in the area of closing the staffing gap and achievement gap, and whether there is a trajectory path that has significant and far reaching implications for the district.

Conclusion

Any discussion about current efforts to improve American education must start with how to ensure that every classroom is staffed with a highly effective teacher. As the nation faces challenging social and global trends that are accompanying the changing landscape of the United States and the entry of this nation into a global economy, Americans must take a stand to demand that every child receives a quality education. At the heart of this discussion is the perpetual achievement and staffing gap that exists between students from low-income homes and students of color compared to White students and students from more affluent homes. “The peril is not solely, or even principally, a failure of American schools, but a failure of American vision and leadership” (Center for Innovative Thought, 2006, p. 5). To address the staffing gap, policymakers, district leaders, educators, and communities must commit to action. The Learning First Alliance (2005) concludes in its *Framework for Action*:

We must commit now to bringing about a future in which no school is considered ‘hard to staff’. The stakes simply could not be higher. Ethically, we can no longer afford to tolerate school staffing patterns that constrain the learning and diminish the future prospects of literally millions of our low-income and minority young people. Economically, we cannot accept the loss of talent and productivity that such young people can contribute to our society if they are given an excellent chance to succeed in school. (p. 24)

Only through courageous conversations built on mutual respect and trust can we begin to build the alliances necessary to find fair and effective solutions to the staffing gap that plagues our most challenging schools and jeopardizes our most vulnerable students. The time has come to stop blaming each other for the inequities that exist in public schools and to accept shared responsibility. In doing so, we have the opportunity to build a collective vision for all of our students and provide the leadership to work together toward the national goals of ensuring that *every* classroom is staffed with a quality teacher and that *every* child receives a quality education.

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VITA

Name: Robin West McGlohn

Address: Department of Educational Administration
College of Education
Texas A&M University
4225 TAMU
College Station, TX 77843-4225

Email Address: robinmcglohn@sbcglobal.net

Education: Ed.D., Education Administration, Texas A&M University, 2012

B.S., Education, University of Nevada Las Vegas, 1994

M.S., Educational Leadership, University of Nevada Las Vegas,
2002